SHARP SERVICE MANUAL

OUTSTANDING RECEPTION THE WORLD OVER

ATSM281023RCS

APLD
Auto Program Locate Device

MODELS
GF-515
GF-515C

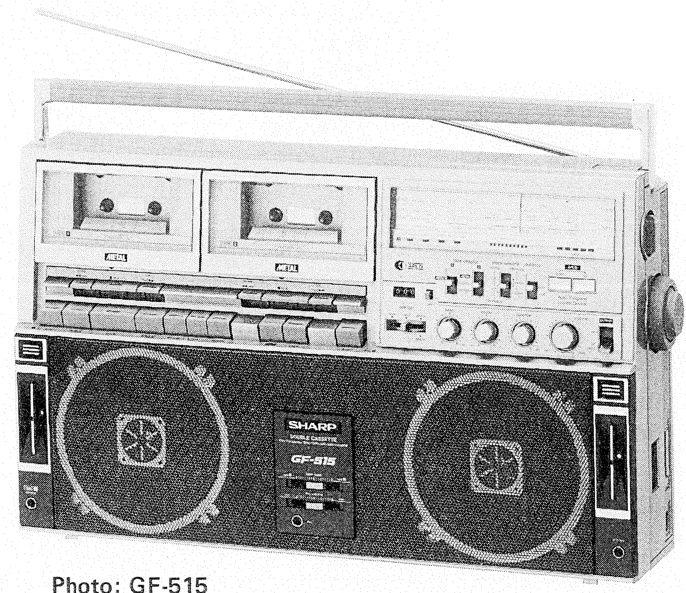

Photo: GF-515

In the interests of user-safety the set should be restored to its original condition and only parts identical to those specified be used.

- This Service Manual is prepared centering on the GF-515: the major differences of the GF-515C against it can be made out with a reference to "DIFFERENCE BETWEEN GF-515 AND GF-515C" at the end of PARTS LIST.
- As for the following items, they are omitted from the explanations of this Service Manual and therefore refer to the already issued "GF-666/GF-666C Service Manual" to see their details.
  1. MECHANICAL ADJUSTMENT
  2. GENERAL ALIGNMENT INSTRUCTION

  Note: The dummy capacitor shown in Fig. 19–3 on page of the GF-666/GF-666C Service Manual must be changed from 10 PF to 18PF: the 18 PF capacitor has been found more appropriate for both the GF-666/GF-666C and GF-515/GF-515C.

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SHARP CORPORATION
SHARP ELECTRONICS CORPORATION

SPECIFICATIONS

GENERAL

Power source:	AC 110/220/240V (GF-515), AC 120V (GF-515C), 50/60Hz DC 15V (Ten "D" size batteries or external DC supply)
Speakers: Woofer;	16 cm (6-1/2") x 2
Tweeter;	Horn type x 2
Output power:	GF-515: 4 Watts per channel, minimum RMS, at 4 ohms, from 100Hz to 20kHz, no more than 10% total harmonic distortion GF-515C: MPO 22W (11W + 11W) AC operation
Semiconductors;	GF-515; 7-ICs, 3-Aux. ICs, 17-Transistors, 31-Aux. Transistors, 1-SCR, 47-Diodes, 14-LEDs GF-515C; 10-ICs, 48-Transistors, 1-SCR, 47-Diodes, 14-LEDs
Dimensions:	
Width;	530 mm (20-7/8")
Depth;	154 mm (6-1/16")
Height;	320 mm (12-5/8")
Weight: (without batteries)	9.0 kg (19.8 lbs.)

TAPE RECORDER/PLAYER

Tape:	Philips-type compact cassette tape
Frequency response:	30 Hz to 17000 Hz (Metal tape) 30 Hz to 15000 Hz (CrO2 tape) 30 Hz to 14000 Hz (normal tape)
S/N ratio:	50 dB
Wow and flutter:	0.07% WRMS
Input sensitivity and input impedance:	
Ext. Mic;	600 ohms
Mixing Mic;	600 ohms
Line in;	0.1V/100K ohms
Output level and loaded impedance:	
Headphones;	8 ohms to 25 ohms
External speaker;	4 ohms to 8 ohms
Line out;	0.7V/50K ohms

RADIO

Frequency range:	AM; 525 kHz to 1605 kHz SW1; 2.3 MHz to 7.3 MHz SW2; 7.3 MHz to 22 MHz FM; 87.6 MHz to 108 MHz

Specifications for this model are subject to change without prior notice.

EXPLANATION OF PARTS

1. Built-in Microphone for Left Channel Recording
2. Built-in Microphone for Right Channel Recording
3. Deck 1; Monitoring Socket
4. Headphones Socket
5. Mixing Microphone Socket
6. Microphone Volume Control
7. Tape Fading Control
8. FM Aerial Terminals
9. Telescopic Aerial
10. Battery Compartment Lid
11. Remote Start/Stop Control Socket
12. External Microphone Sockets
13. Earthing Terminal
14. Record Player Input Sockets
15. Line Input Sockets
16. Line Output Sockets
17. Beat Interference Cancelling Switch

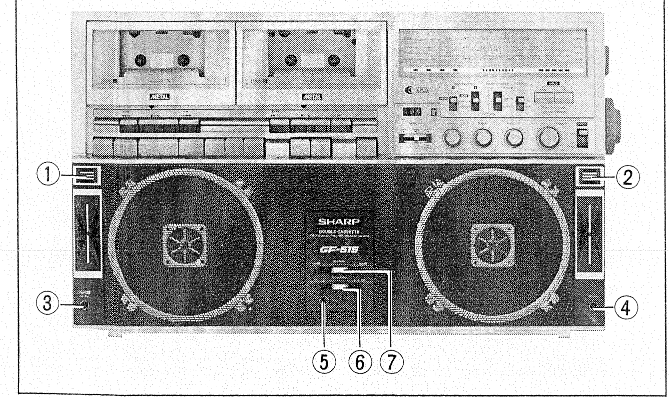


Figure 2–1

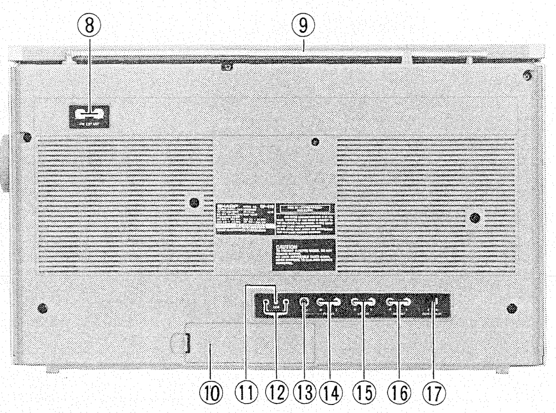


Figure 2–2

18. Deck 1; Cassette Compartment
19. Deck 2; Cassette Compartment
20. Deck 1; Rewind/Review (Skip Rewind) Key
21. Deck 1; Stop Key
22. Deck 1; Fast Forward Wind/Cue (Skip) Key
23. Deck 2; Rewind/Review (Skip Rewind) Key
24. Deck 2; Stop Key
25. Deck 2; Fast Forward Wind/Cue (Skip) Key
26. Deck 1; Cassette Ejection Key
27. Deck 1; APLD Reverse (Rewind) Key
28. Deck 1; Playback Key
29. Deck 1; APLD Forward Key
30. Deck 1; Pause Key
31. Deck 2; Editing Key
32. Deck 2; Pause Key
33. Deck 2; Record Key
34. Deck 2; Playback Key
35. Deck 2; Cassette Ejection Key

36. FM Stereo Broadcast Indicator
37. Dubbing Indicator
38. Recording Indicator
39. Power Indicator
40. Level/Tuning Indicators
41. APLD Indicators
42. Deck 2; Tape Counter
43. Deck 2; Counter Reset Button
44. Deck 1; Tape Selector Switch
45. Deck 2; Tape Selector Switch
46. FM Mode/Mixing/FM Muting Switch
47. Dubbing Switch
48. APLD Down Button
49. APLD Up Button
50. Function Selector Switch
51. Bass Tone Control
52. Treble Tone Control
53. Channel Balance Control
54. Output Volume Control
55. Power Switch

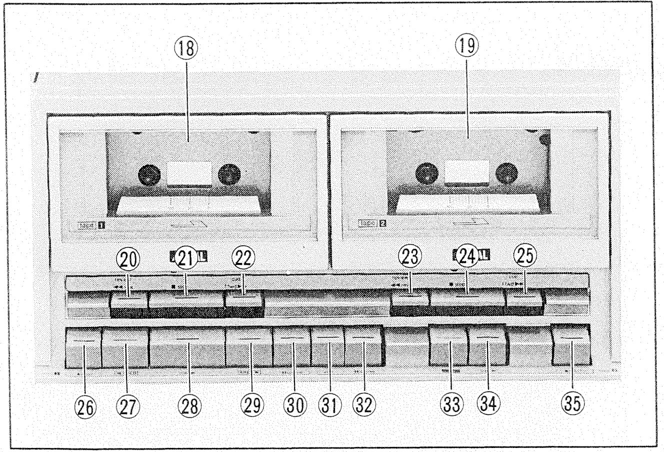


Figure 3–1

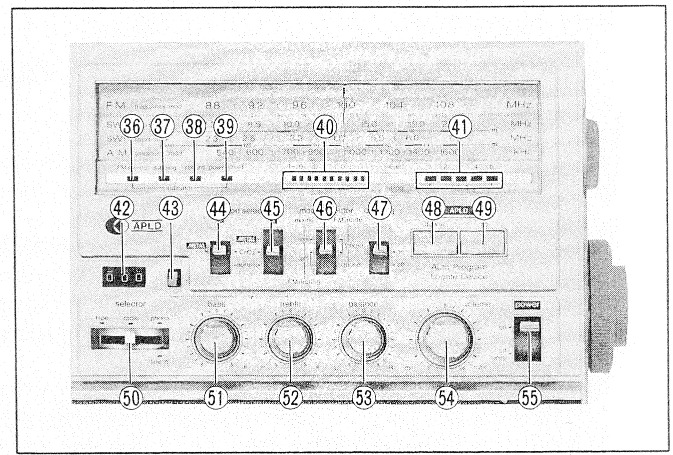


Figure 3–2

56. Wave Band Selector Switch
57. Tuning Control
58. Fine Tuning Control
59. External Speaker (Left) Socket
60. External Speaker (Right) Socket
61. 15 Volt DC Terminal
62. AC Supply Input Terminal
63. Mains Supply Voltage Selector (GF-515 Only)

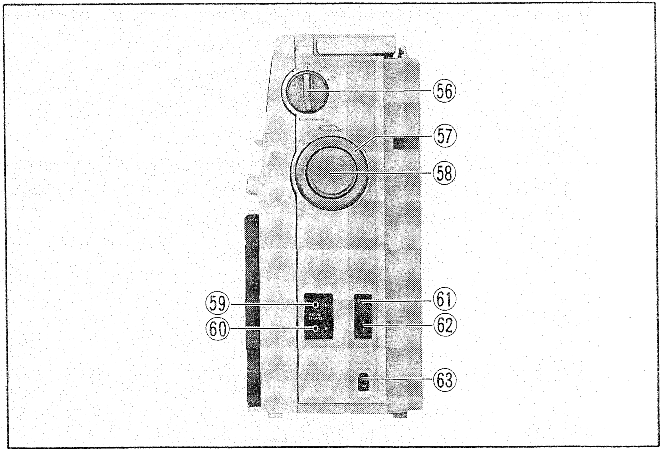


Figure 3–3

SUPPLY VOLTAGE

The GF-515 Unit will operate on an AC mains supply of 110 Volts, 220 Volts, or 240 Volts of 50Hz or 60Hz. For portable use it will operate on its internal batteries, or from an external 15 Volts DC supply (with an adaptor).

The GF-515C Unit will operate on an AC mains supply of 120 Volts of 50Hz or 60Hz. For portable use it will operate on its internal batteries, or from an external 15 Volts DC supply (with an adaptor).

MAINS SUPPLY VOLTAGE SELECTION (GF-515 Only)

Be sure to check the preset voltage before connecting A.C. Supply lead to a A.C. mains outlet. If the setting differs from your local power supply, Voltage selector must be reset in the following manner.
Rotate Voltage selector with a screwdriver until the correct setting of the local electrical supply can be seen.

Caution:
Use this unit only on the specified voltages, otherwise damage, fire, or accidents may be caused. SHARP can not accept responsibility for any damage resulting from the use of this unit on unspecified voltages.

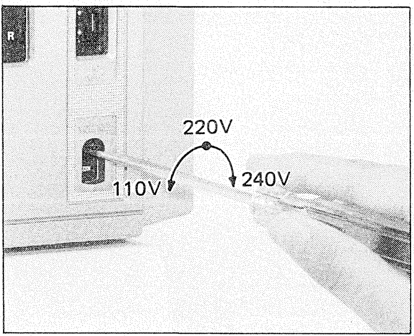


Figure 4–1

DISASSEMBLY

Caution:
Prior to the disassembly, be sure to draw the AC mains lead plug from the AC mains socket of the unit and to unload the cassette compartment with a cassette tape.

1. FRONT CABINET AND REAR CABINET REMOVAL

1) Remove seven control knobs located at the front of the unit (output volume control, channel balance control, treble tone control, bass tone control, function selector, tape fading control and mic volume control).
2) Depress the cassette ejection keys (one each at the deck 1 and deck 2 sides) to open the cassette compartment.
3) Open the battery compartment lid at the rear of the unit, and take out ten batteries.
4) Remove nine screws at the rear cabinet.
5) Take the rear cabinet off upwards, then remove the tips (① Black, ② Black, ③ White) at the rear cabinet's inside shield plate and also the FM telescopic aerial terminals. (Refer to Figure 5–1.)
6) Set the function selector switch to "radio", the deck 1/ deck 2 tape selector switch to "CrO2", the mode selector switch to "off (mixing)/stereo (FM mode)", the dubbing switch to "on" and the power switch to "on" position, respectively.
7) Take the front cabinet off forwards, and disconnect the front cabinet's inside socket from the headphones socket P.W. board. (Refer to Figure 5–2.)

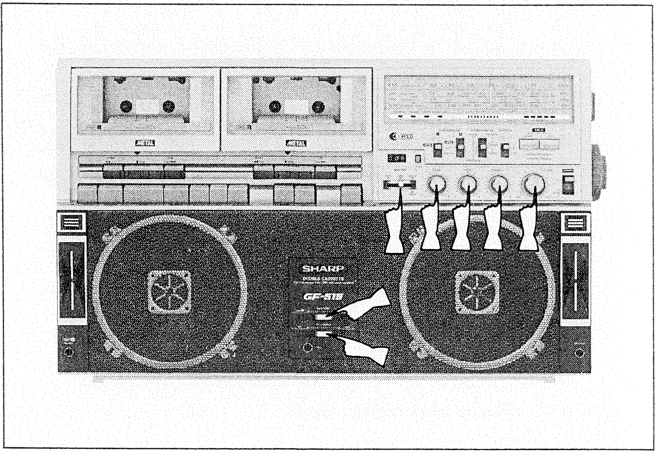


Figure 4–2

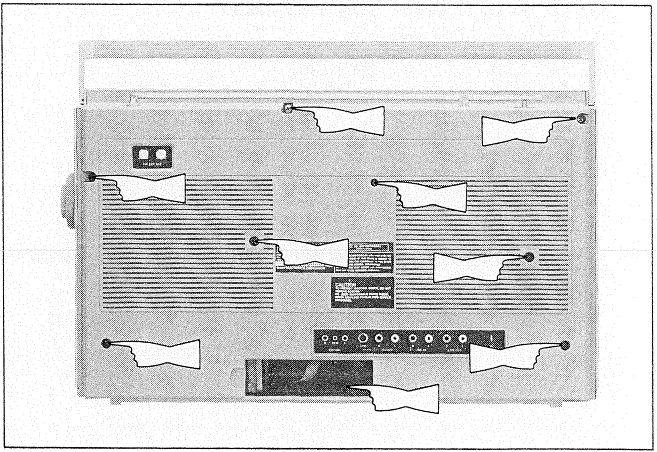


Figure 4–3

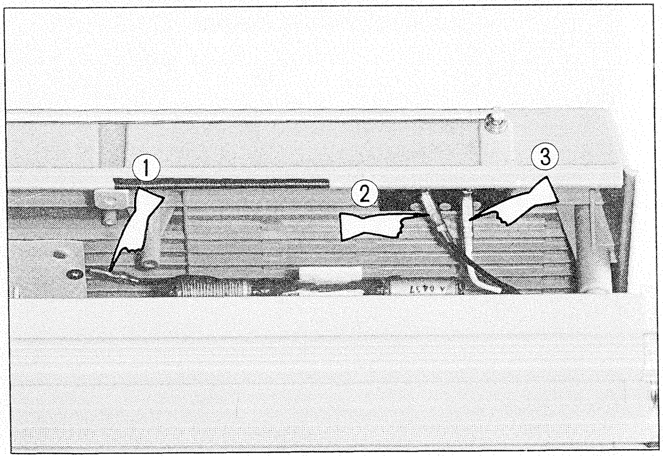


Figure 5–1

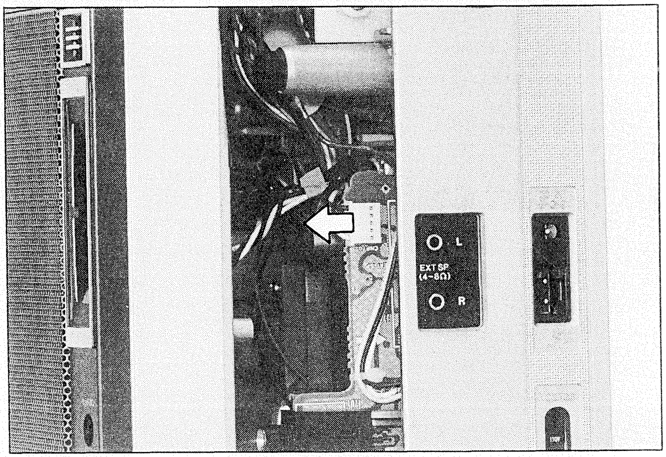


Figure 5–2

2. MECHANISM BLOCK REMOVAL

1) Remove two sockets from the mechanism block P.W. board and also three sockets from the record/playback amp. P.W. board.
2) Remove one screw from the tape counter.
3) Remove three screws from the mechanism block (one each at the front-right, front-left and rear sides), and move the mechanism block forwards and take it off.

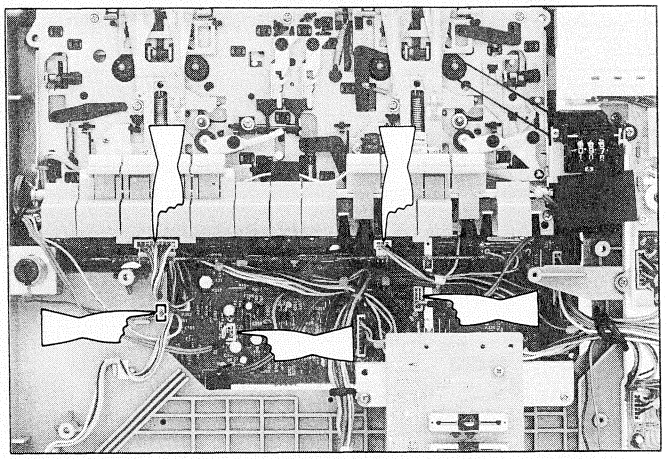


Figure 5–3

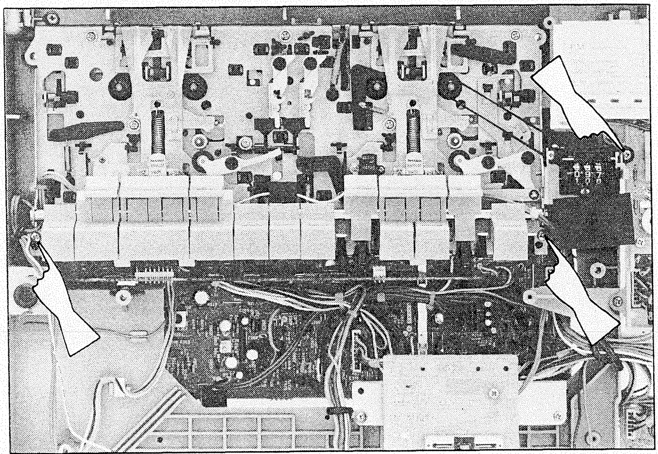


Figure 5–4

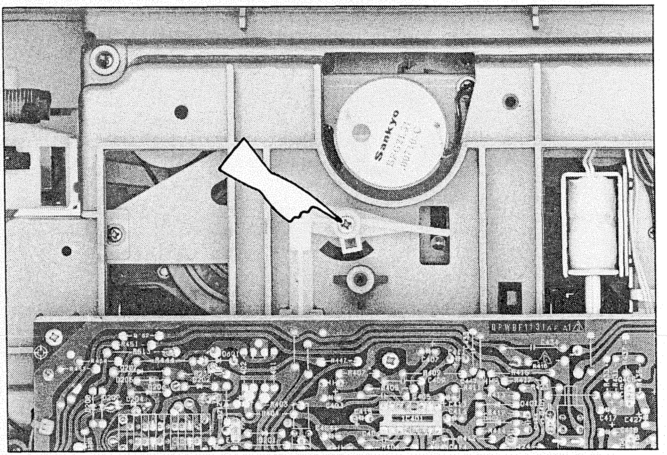


Figure 5–5

3. MIXING MICROPHONE SOCKET PRINTED WIRING BOARD REMOVAL

1) Disconnect the socket from the mixing microphone socket P.W. board, and remove three screws from the P.W. board.

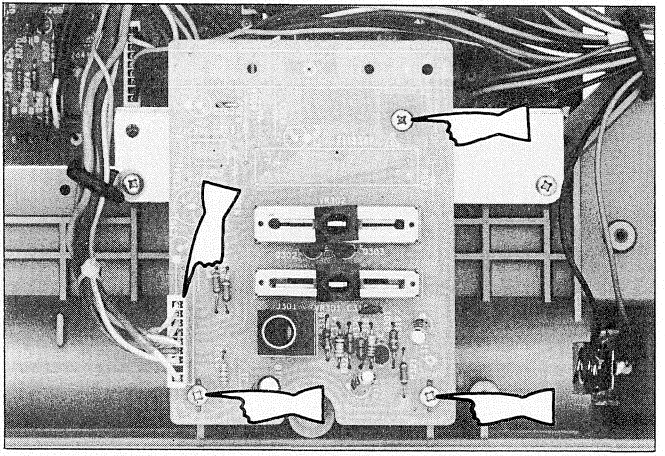


Figure 6–1

4. RADIO PRINTED WIRING BOARD REMOVAL

1) Disconnect three sockets from the radio P.W. board, indicators P.W. board and power supply P.W. board.
2) Disconnect two sockets from the record/playback amp. P.W. board.
3) Take off the wave band selector knob, tuning control knob and fine tuning control knob by using a bladed screwdriver.
4) Set the power switch to "off/sleep" position.
5) Remove two screws from the function selector switch lever.
6) Remove four screws from the radio P.W. board frame, and detach the frame frontwards.

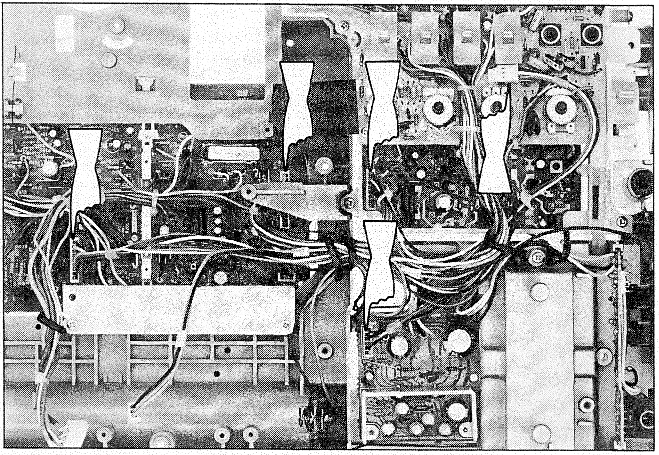


Figure 6–2

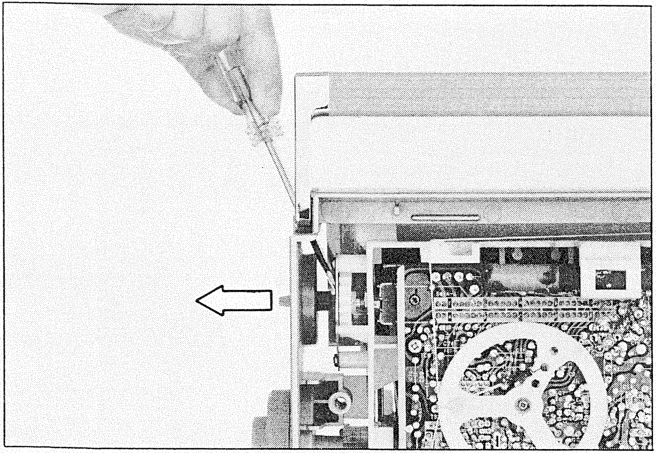


Figure 6–3

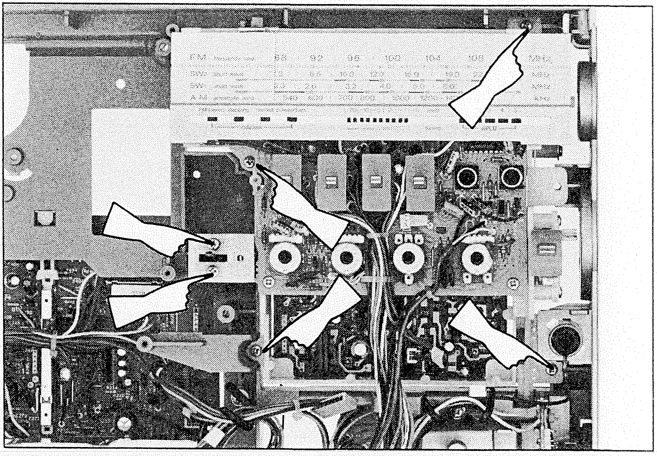


Figure 6–4

5. INDICATORS PRINTED WIRING BOARD REMOVAL

1) Disconnect the socket from the radio P.W. board.
2) Force two claw out of the dial scale plate, and detach the dial scale plate.
3) Remove two screws from the indicators P.W. board.
4) Force three claws (Ⓐ, Ⓑ, Ⓒ) out of the shield plate, and take the shield plate off.

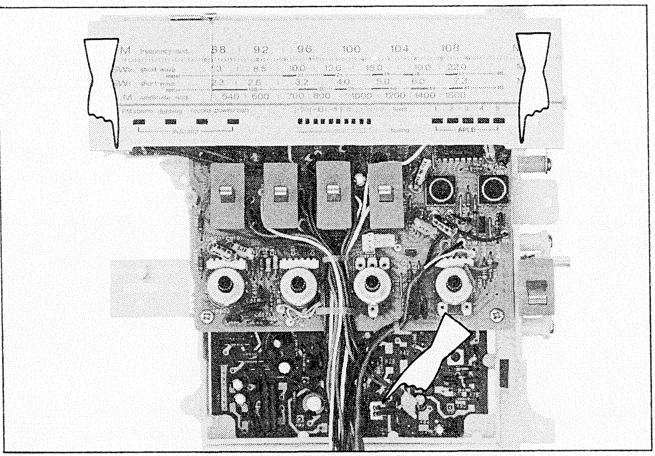


Figure 7–1

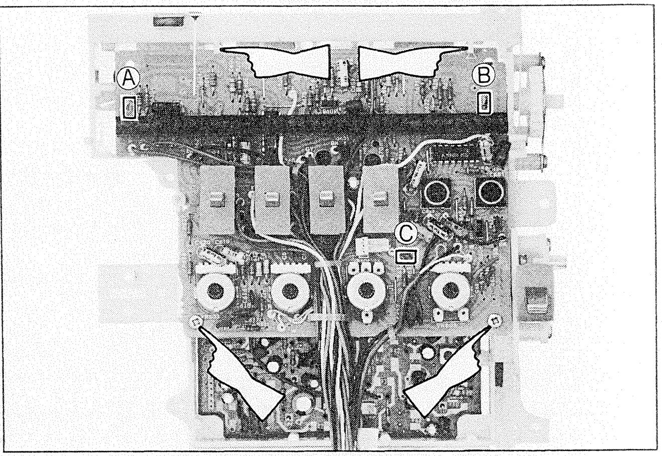


Figure 7–2

6. REMOVAL OF POWER SUPPLY PRINTED WIRING BOARD AND HEADPHONES SOCKET PRINTED WIRING BOARD

1) Disconnect the socket from the record/playback P.W. board.
2) Detach the headphones socket P.W. board, and remove its wire holder.
3) Remove two screws from the power transformer, and detach the power supply P.W. board by removing the hook on it.

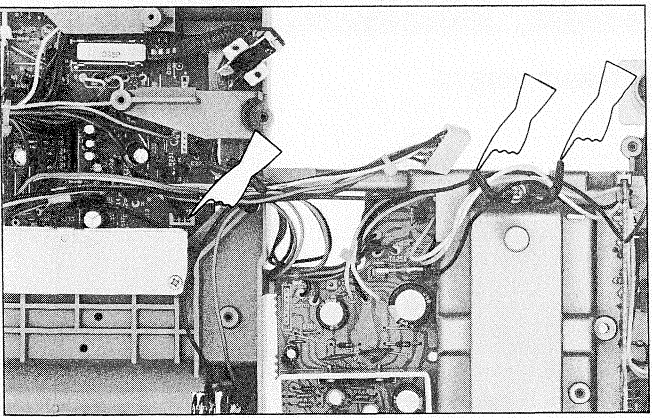


Figure 7–3

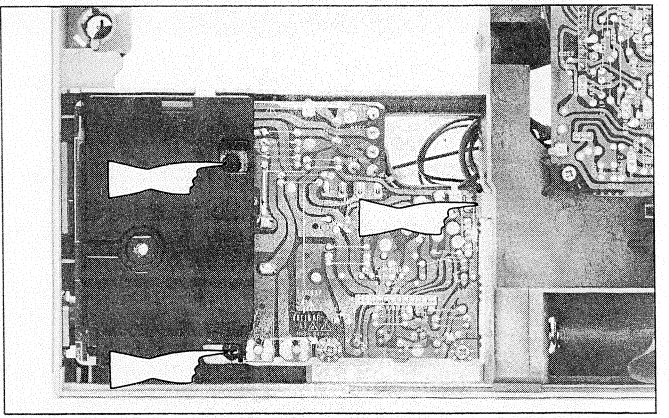


Figure 7–4

7. REMOVAL OF RECORD/PLAYBACK AMP. PRINTED WIRING BOARD AND SOCKETS/TERMINAL PRINTED WIRING BOARD

1) Remove five screws from the record/playback P.W. board and also three screws from the sockets/terminal printed wiring board.
2) If necessary, further detach the built-in microphone and the deck 1 monitor output socket P.W. board.

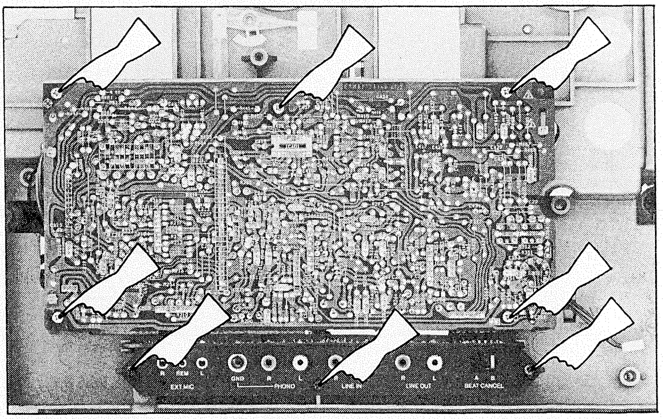


Figure 7–5

ELECTRICAL ADJUSTMENT

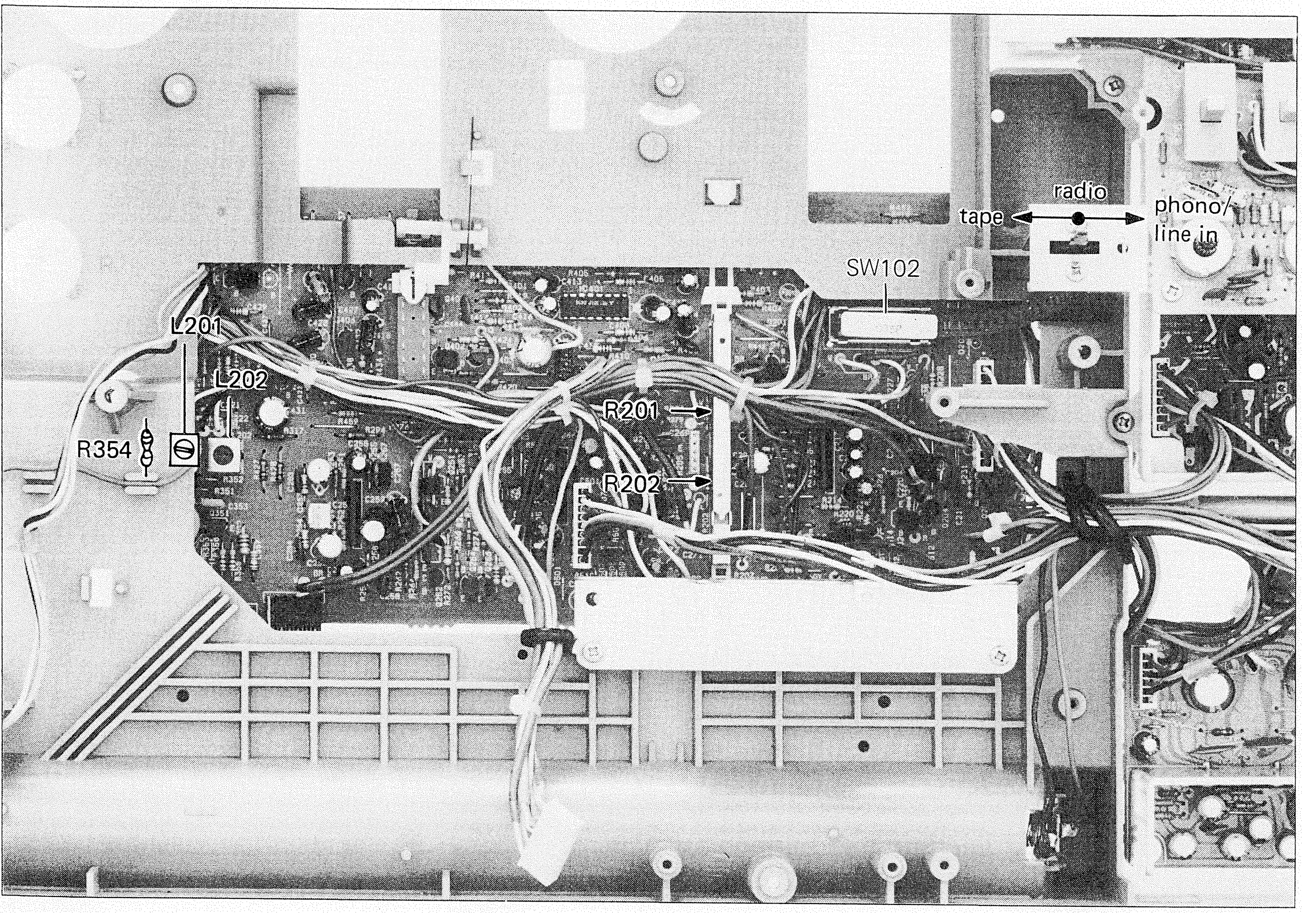

radio
tape
phono/line in
SW102
L201
L202
R201
R202
R354

Figure 8–1 ADJUSTMENT POINTS

Record Amplifier Bias Current/Bias Oscillator Frequency Adjustment

1) Connect VTVM across resistor (R201 or R202) to the record/playback amp. P.W. board.
2) Set the function selector switch to "tape", the deck 2 tape selector switch to "normal" and the beat interference cancelling switch to "A" position.
3) Connect an oscilloscope (the vertical input) to the output of VTVM, and an audio generator to the oscilloscope (the horizontal input).
4) Place the unit in record mode, and check that the bias oscillator frequency, on the oscilloscope Lissajou's figure, is 82.5 to 89.5 kHz and, by setting the beat interference cancelling switch to "B" position, that the frequency must change by −2.0 ± 1.0 kHz.
5) Adjust the bias current adjust coil (L201 or L202) so that the VTVM reads 28 mV.

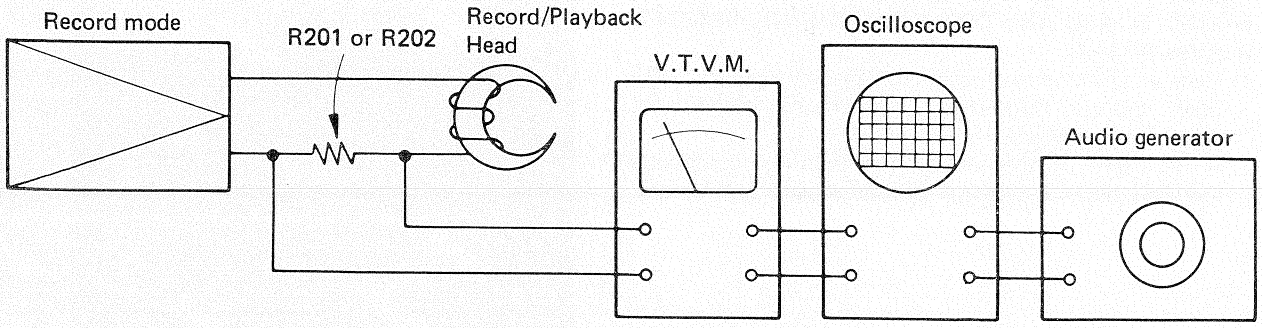

Record mode
R201 or R202
Record/Playback
Head
V.T.V.M.
Oscilloscope
Audio generator

Figure 8–2

Erase Current Check

1) Connect VTVM across resistor (R354) to the record/playback amp. P.W. board.
2) Set the function selector switch to "tape" and the deck 2 tape selector switch to "normal" position.
3) Place the unit in record mode, and check that the VTVM is reading 70 to 110 mV.

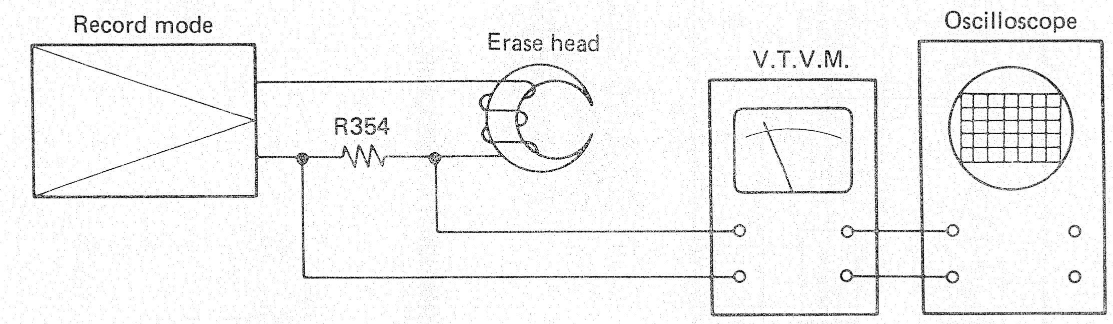

Record mode
Erase head
R354
V.T.V.M.
Oscilloscope

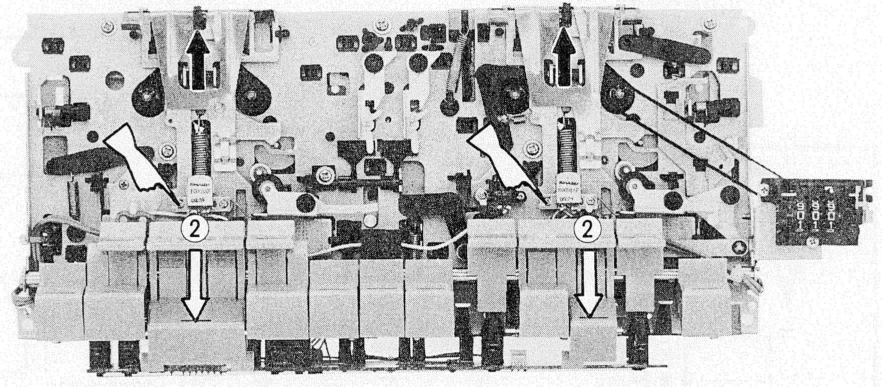
Figure 9–1

Record/Playback Head Azimuth Adjustment

1) Connect load resistor to the line output sockets and apply output signals from the right and left channels to the channel 1 and channel 2 input terminals of oscilloscope.
2) Set the function selector switch to "tape" position.
3) Load a test tape (MTT-114, 10 kHz, –10 dB recorded) in the unit.
4) Place the unit in playback mode.
5) Adjust the head azimuth adjusting screw so that sine waveform attains the maximum with the same phase in right and left.

Note: The heads may have a phase difference between right and left channels when the output is made maximum. In this case, adjust the head azimuth so that such phase difference will be as small as possible while keeping the output still maximum.

6) Even without using the oscilloscope, also adjust the head azimuth adjusting screw so that the outputs from the right and left channels reach the maximum with the same phase in right and left.



① After inserting the test tape, push up the cassette compartment sensing lever.

① After inserting the test tape, push up the cassette compartment sensing lever.

Figure 9–2

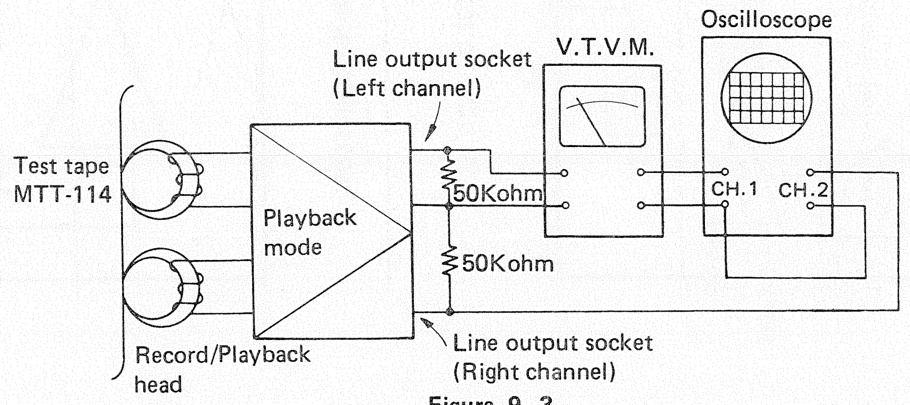

Line output socket (Left channel)
V.T.V.M.
Oscilloscope
Test tape MTT-114
Playback mode
50Kohm
50Kohm
CH.1
CH.2
Line output socket (Right channel)
Record/Playback head

Figure 9–3

Record Amplifier Sensitivity Check

1) Connect VTVM across resistor (R201 or R202) to the record/playback amp. P.W. board.
2) Short pins ④ and ⑥ at the secondary side of the bias oscillation coil (L301) to stop the oscillation.
3) Set the deck 2 tape selector switch to "normal" position.
4) Place the unit in record mode, and check if the VTVM reading is 2mV with the respective inputs tabulated below — the input oscillation frequency is set to 1 kHz, and 0 dB = 1 V is assumed.

Note:

- For the signal input to the external microphone input socket, it must be made via the right and left channels.
- For the signal input to the mixing microphone socket, it is needed to set the mic mixing switch (mode selector) to "on" and mic volume control knob to "max" position.

Sockets	Inputs	Function selector switch set to:
External microphone input	0.09 mV ~ 0.178 mV (–78 ±3 dB)	"tape"
Mixing microphone	0.501 mV ~ 1.0 mV (–63 ±3 dB)	Any position as desired
Line input	0.05 V ~ 0.1 V (–23 ±3 dB)	"line in"
Record player input	0.891 mV ~ 1.778 mV (–58 ±3 dB)	"phono"

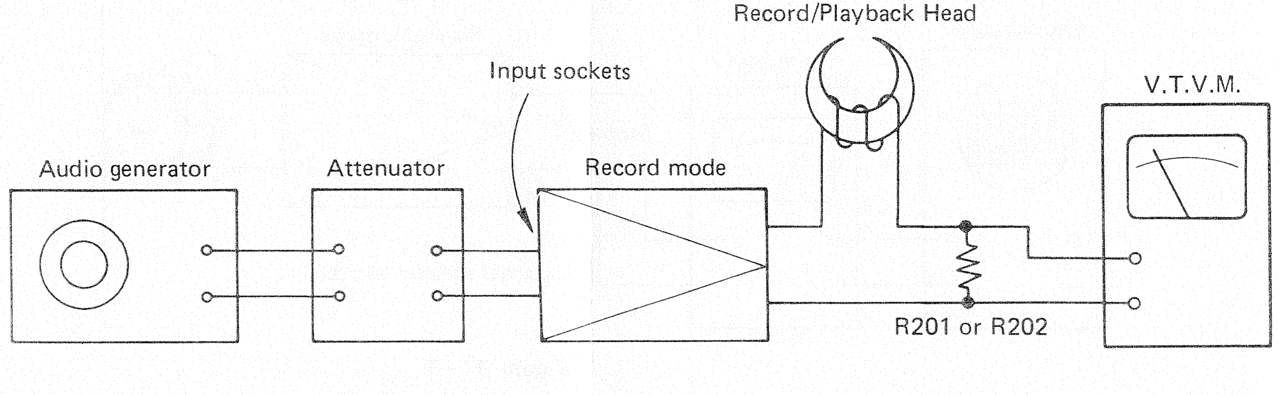
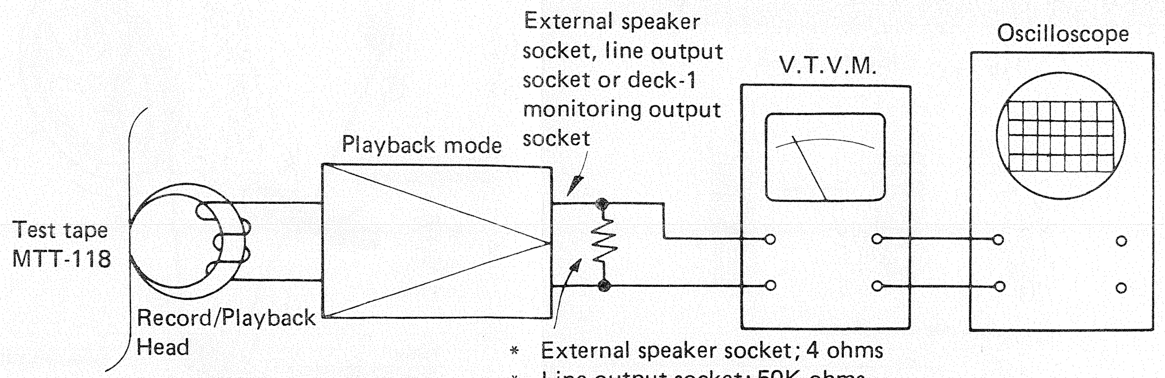

Record/Playback Head
Input sockets
V.T.V.M.
Audio generator
Attenuator
Record mode
R201 or R202

Figure 10–1

Playback Amplifier Sensitivity Check

1) Connect VTVM across a 4 ohm resistor to the external speaker socket.
2) Set the function selector switch to "tape", the tape selector switch to "normal", the treble/bass tone control knob to "0", the output volume control knob to "10/max" and tape fading control knob to "center" position.
3) Reproduce a test tape (TEAC, MTT-118, 1 kHz, 250 pWb/mm, –10 dB prerecorded).
4) At the time, the VTVM must read approx. 1.9V.
5) Then connect the VTVM to both the line output socket and the deck 1 monitoring output socket, then the VTVM reading must be approx. 300 mV for the former and approx. 14 mV for the latter.

Note:
For measuring the output from the deck 1 monitoring output socket, the test tape be played through the use of the deck 1.


External speaker socket, line output socket or deck-1 monitoring output socket
V.T.V.M.
Oscilloscope
Playback mode
Test tape MTT-118
Record/Playback Head

* External speaker socket; 4 ohms
* Line output socket; 50K ohms
* Deck-1 monitoring output socket; 8 ohms

Figure 10–2

Record/Playback Sensitivity Check

1) Connect VTVM across a 4 ohm resistor to the external speaker socket.
2) Set the function selector switch to "tape", the deck 2 tape selector switch to "normal", the treble/bass tone control knob to "0" and the output volume control knob to "10/max" position.
3) Connect an audio generator to the external microphone input sockets of both channels, and apply a 1 kHz signal of output level −78 dB (0.126 mV, 0 dB = 1 V) to these sockets at a time.
4) Record this signal on a normal tape (TEAC, MTT-502).
5) Reproduce the recorded tape, then the VTVM must read approx. 1.7 V.

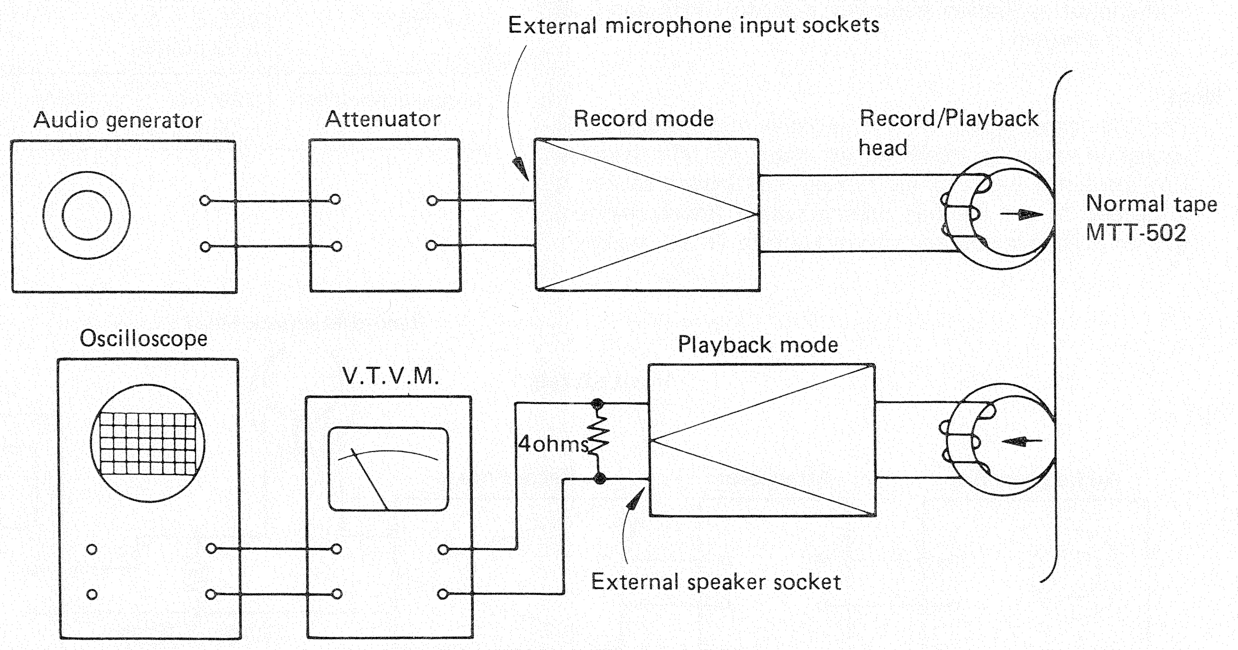

External microphone input sockets
Audio generator
Attenuator
Record mode
Record/Playback head
Normal tape MTT-502
Oscilloscope
V.T.V.M.
Playback mode
4ohms
External speaker socket

Figure 11—1

DIAL CORD STRINGING

1) Turn the drum fully clockwise and stretch its cord cover the parts in the numerical order – as shown in Fig. 11—3.
2) Turn the tuning control shaft fully counterclockwise, and fix it with the pointer aligned with the zero (0) point on the dial scale. See Fig. 11—2.

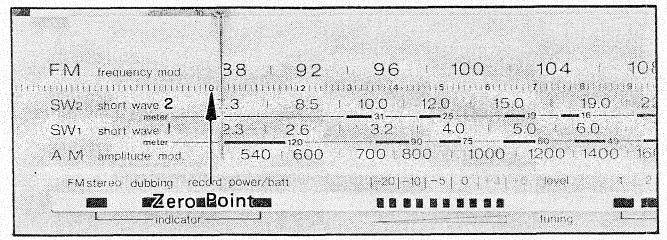
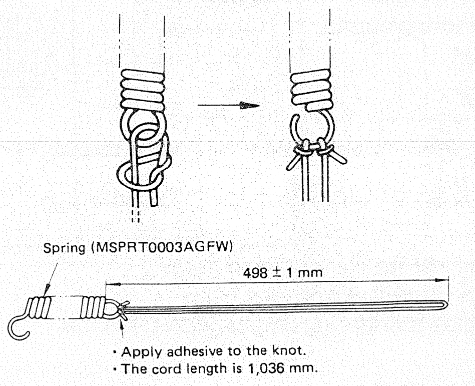

FM frequency mod.
88 92 96 100 104 108
SW2 short wave 2
3 8.5 10.0 12.0 15.0 19.0
meter
31 25 19 16
SW1 short wave 1
2.3 2.6 3.2 4.0 5.0 6.0
meter
120 90 75 60 49
AM amplitude mod.
540 600 700 800 1000 1200 1400 1600
FM stereo dubbing record power/batt
−20 −10 −5 0 level
Zero Point
indicator
tuning

Figure 11—2


Spring (MSPRT0003AGFW)
498 ± 1 mm

- Apply adhesive to the knot.
- The cord length is 1,036 mm.

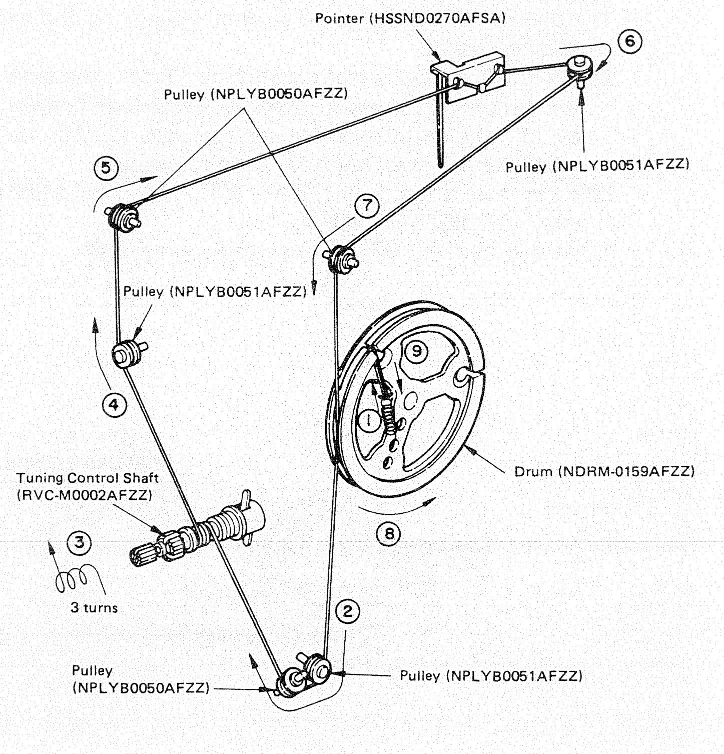
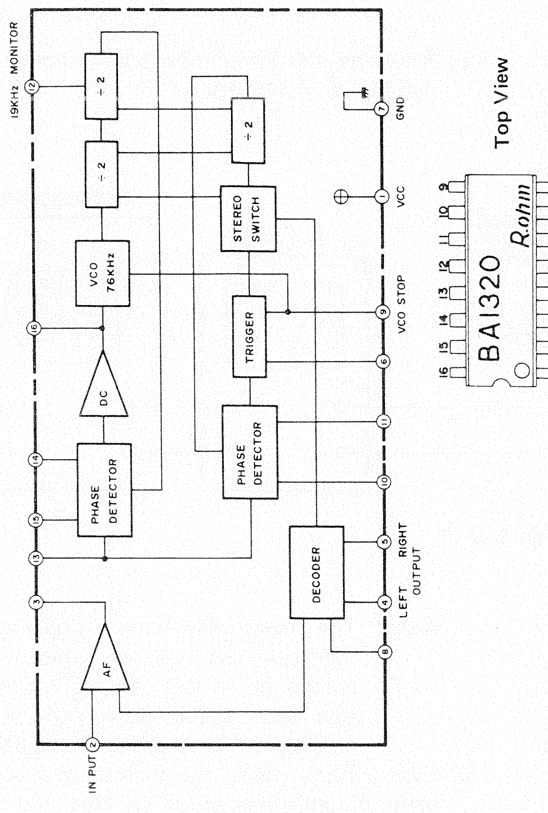
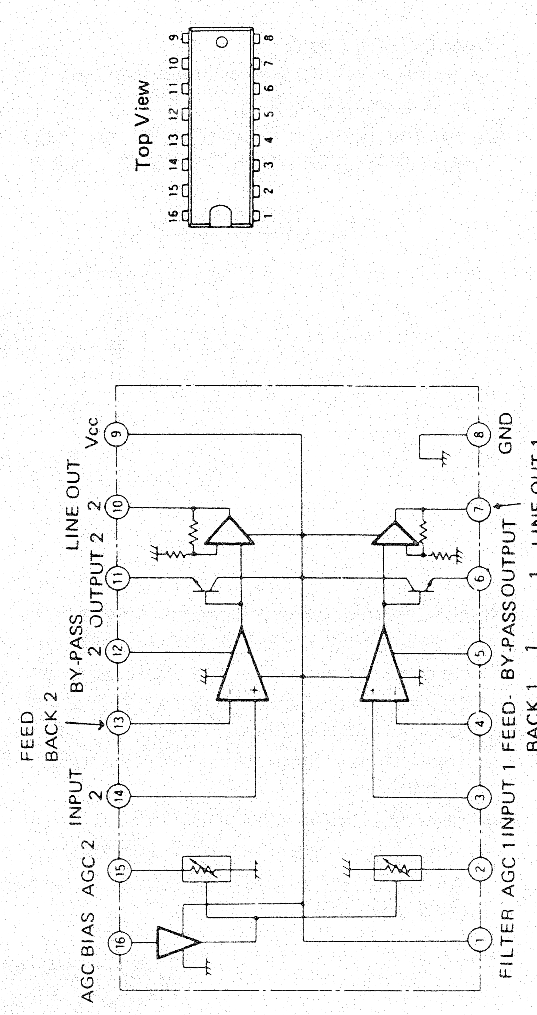

Pointer (HSSND0270AFSA)
Pulley (NPLYB0050AFZZ)
Pulley (NPLYB0051AFZZ)
Pulley (NPLYB0051AFZZ)
Drum (NDRM-0159AFZZ)
Tuning Control Shaft (RVC-M0002AFZZ)
3 turns
Pulley (NPLYB0050AFZZ)
Pulley (NPLYB0051AFZZ)
①
②
③
④
⑤
⑥
⑦
⑧
⑨

Figure 11—3

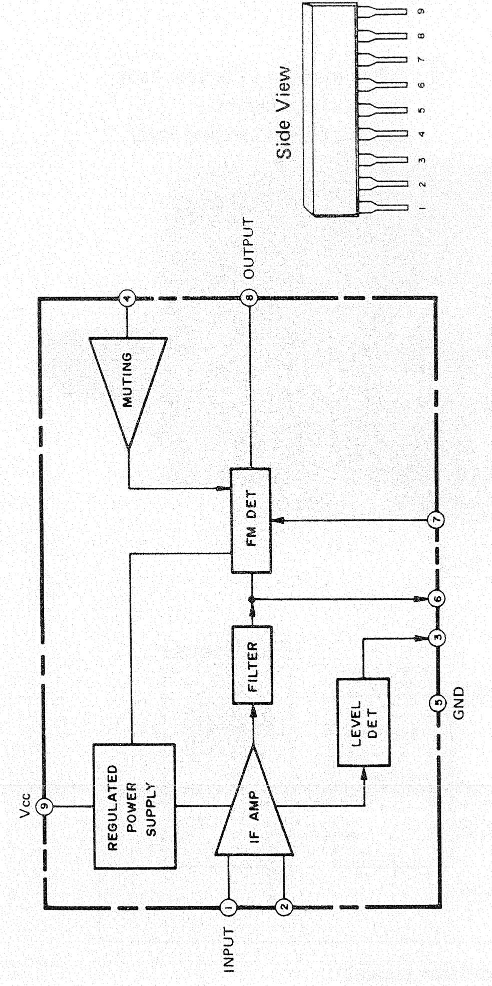
IC2: RH-IX1082AFZZ (BA1320)


19KHz MONITOR
÷2
÷2
VCO 76KHz
DC
PHASE DETECTOR
AF
IN PUT
STEREO SWITCH
TRIGGER
PHASE DETECTOR
DECODER
GND
VCC
VCO STOP
LEFT RIGHT OUTPUT
Top View
BA1320
Rohm

IC401: VHIM51301P/1 (M51301P)


Top View
Vcc
GND
LINE OUT 2
OUTPUT 2
BY-PASS 2
FEED BACK 2
INPUT 2
AGC 2
AGC BIAS
LINE OUT 1
OUTPUT 1
BY-PASS 1
FEED BACK 1
INPUT 1
AGC 1
FILTER

IC1: RH-IX1083AFZZ (TA7303P-C SHARP3)


Side View
OUTPUT
MUTING
FM DET
FILTER
LEVEL DET
REGULATED POWER SUPPLY
IF AMP
Vcc
INPUT
GND

IC201, IC251 & IC301: RH-IX1079AFZZ (M51521L)

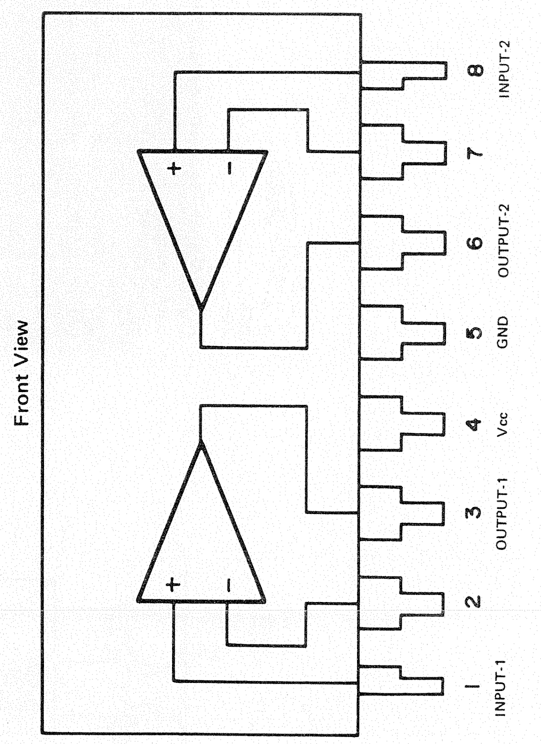
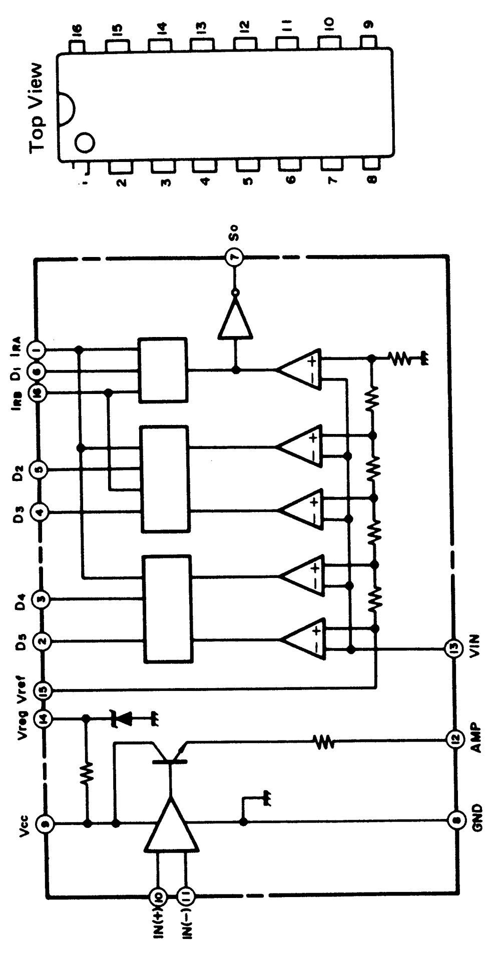
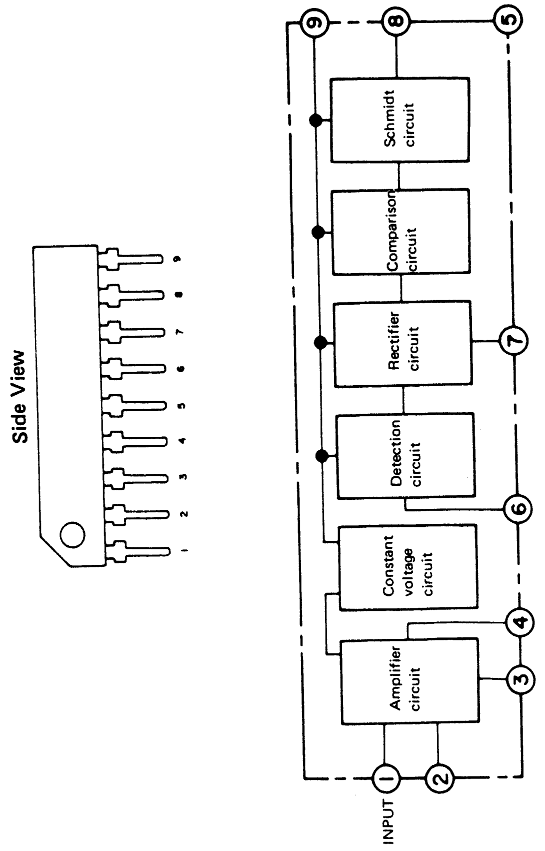

Front View
INPUT-1
OUTPUT-1
Vcc
GND
OUTPUT-2
INPUT-2
1
2
3
4
5
6
7
8

Figure 12 BLOCK DIAGRAM OF INTEGRATED CIRCUIT

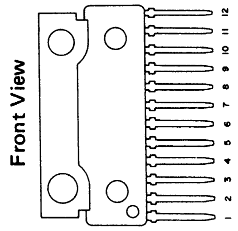
IC601: VHIIR2E01//-1 (IR2E01)


Top View
So
IRA
D1
IRB
D2
D3
D4
D5
Vref
Vreg
Vcc
VIN
AMP
GND
IN(+)
IN(−)

IC501: VHIIR3108//-1 (IR3108)


Side View
OUTPUT
Schmidt circuit
Comparison circuit
Rectifier circuit
Detection circuit
Constant voltage circuit
Amplifier circuit
INPUT

IC701: VHIHA1392//-1 (HA1392)



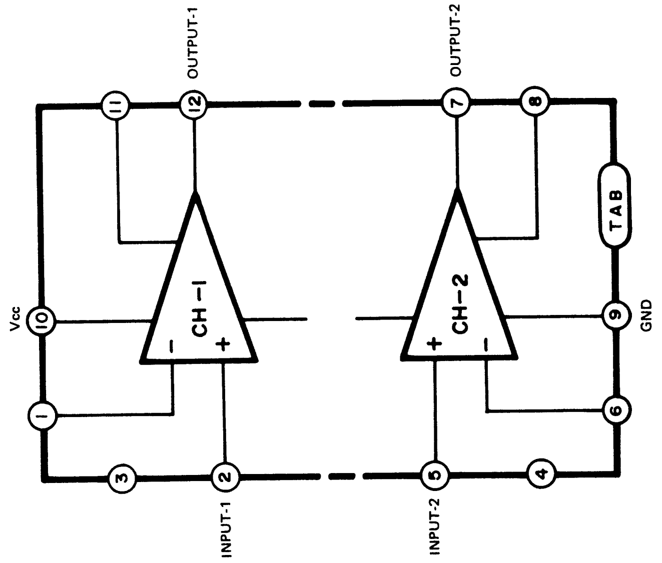

OUTPUT-1
OUTPUT-2
CH-1
CH-2
TAB
Vcc
GND
INPUT-1
INPUT-2

Figure 13 BLOCK DIAGRAM OF INTEGRATED CIRCUIT

IC602: VHIM54832PA-1 (M54832P)

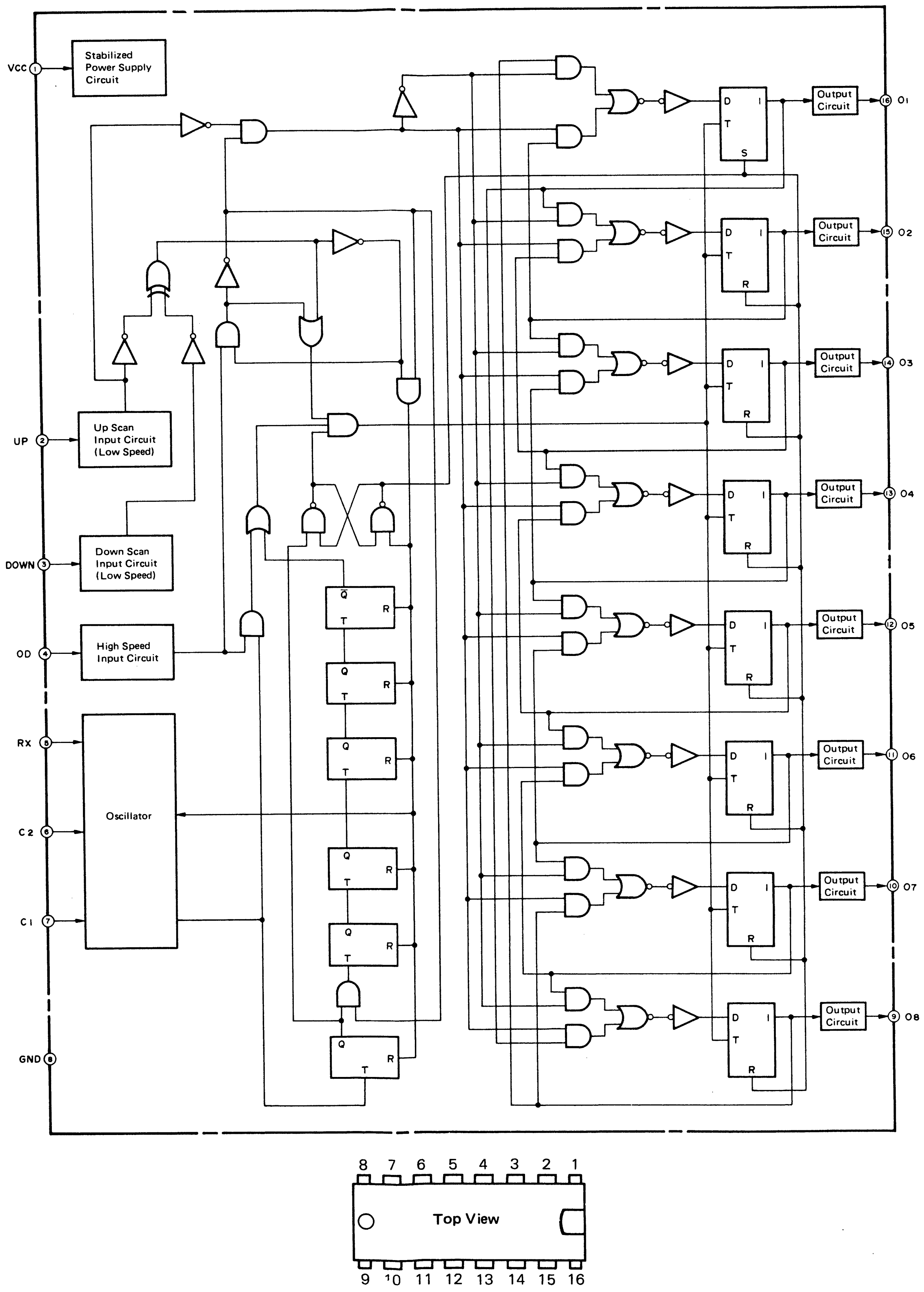

VCC
UP
DOWN
OD
RX
C2
C1
GND
Stabilized Power Supply Circuit
Up Scan Input Circuit (Low Speed)
Down Scan Input Circuit (Low Speed)
High Speed Input Circuit
Oscillator
Output Circuit
O1
O2
O3
O4
O5
O6
O7
O8
Top View

Figure 14 BLOCK DIAGRAM OF INTEGRATED CIRCUIT

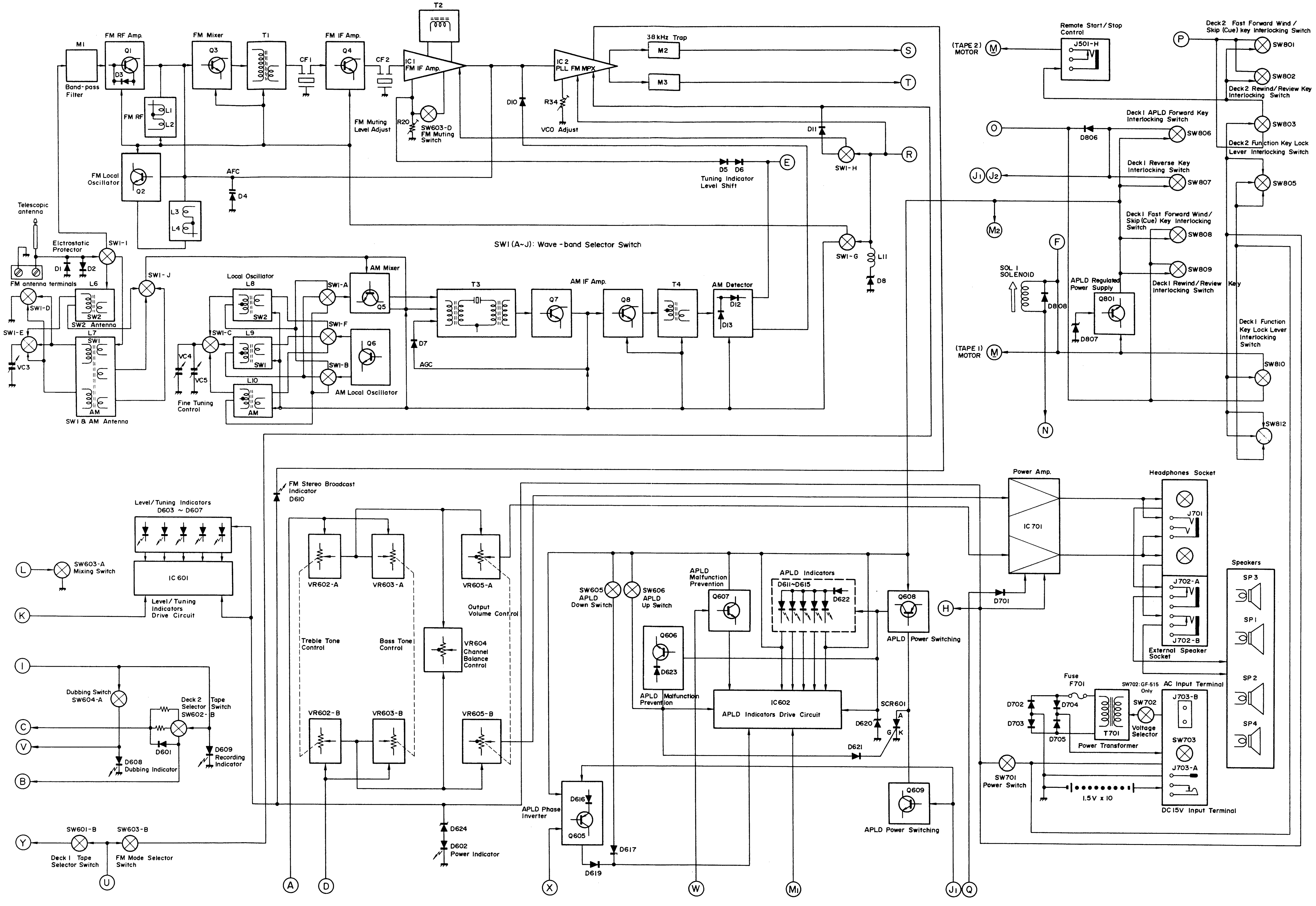

M1
Band-pass Filter
FM RF Amp.
Q1
D3
FM RF
L1
L2
FM Mixer
Q3
T1
CF1
FM IF Amp.
Q4
CF2
T2
IC1 FM IF Amp.
FM Muting Level Adjust
R20
SW603-D FM Muting Switch
IC2 PLL FM MPX
D10
R34
VCO Adjust
38kHz Trap
M2
M3
S
T
D11
R
SW1-H
FM Local Oscillator
Q2
AFC
D4
L3
L4
D5 D6
Tuning Indicator Level Shift
E
Telescopic antenna
Elctrostatic Protector
SW1-I
D1
D2
FM antenna terminals
L6
SW1-D
SW2
SW2 Antenna
L7
SW1-E
SW1
VC3
AM
SW1 & AM Antenna
SW1-J
Local Oscillator
L8
SW1-C
L9
VC4
VC5
L10
Fine Tuning Control
SW1-A
AM Mixer
Q5
SW1-F
Q6
SW1-B
AM Local Oscillator
SW1 (A~J): Wave-band Selector Switch
T3
AM IF Amp.
Q7
Q8
T4
AM Detector
D12
D13
D7
AGC
SW1-G
L11
D8
(TAPE 2) MOTOR
M
Remote Start/Stop Control
J501-H
P
Deck2 Fast Forward Wind / Skip (Cue) key Interlocking Switch
SW801
SW802
Deck2 Rewind/Review Key Interlocking Switch
O
D806
Deck1 APLD Forward Key Interlocking Switch
SW806
SW803
Deck2 Function Key Lock Lever Interlocking Switch
J1 J2
Deck1 Reverse Key Interlocking Switch
SW807
SW805
M2
Deck1 Fast Forward Wind/ Skip (Cue) Key Interlocking Switch
SW808
F
SOL 1 SOLENOID
D808
APLD Regulated Power Supply
Q801
SW809
Deck1 Rewind/Review Key Interlocking Switch
D807
Deck1 Function Key Lock Lever Interlocking Switch
(TAPE 1) MOTOR
SW810
N
SW812
FM Stereo Broadcast Indicator D610
Level/Tuning Indicators D603 ~ D607
L
SW603-A Mixing Switch
IC601
K
Level/Tuning Indicators Drive Circuit
VR602-A
VR603-A
VR605-A
Output Volume Control
Treble Tone Control
Bass Tone Control
VR604 Channel Balance Control
VR602-B
VR603-B
VR605-B
D624
D602 Power Indicator
I
Dubbing Switch SW604-A
C
Deck 2 Selector SW602-B
Tape Switch
V
D601
D608 Dubbing Indicator
D609 Recording Indicator
B
Y
SW601-B
SW603-B
Deck 1 Tape Selector Switch
FM Mode Selector Switch
U
A
D
Power Amp.
IC701
Headphones Socket
J701
J702-A
J702-B
External Speaker Socket
Speakers
SP3
SP1
SP2
SP4
SW605 APLD Down Switch
SW606 APLD Up Switch
APLD Malfunction Prevention
Q607
APLD Indicators
D611~D615
D622
Q608
H
D701
APLD Power Switching
Q606
D623
APLD Malfunction Prevention
IC602
APLD Indicators Drive Circuit
SCR601
D620
D621
A
G
K
APLD Phase Inverter
D616
Q605
D617
D619
Q609
APLD Power Switching
X
W
M1
J1
Q
Fuse F701
D702
D703
D704
D705
T701
Power Transformer
SW702: GF-515 Only
SW702
Voltage Selector
AC Input Terminal
J703-B
SW703
J703-A
SW701 Power Switch
1.5V x 10
DC 15V Input Terminal

Figure 15 BLOCK DIAGRAM (1/2)

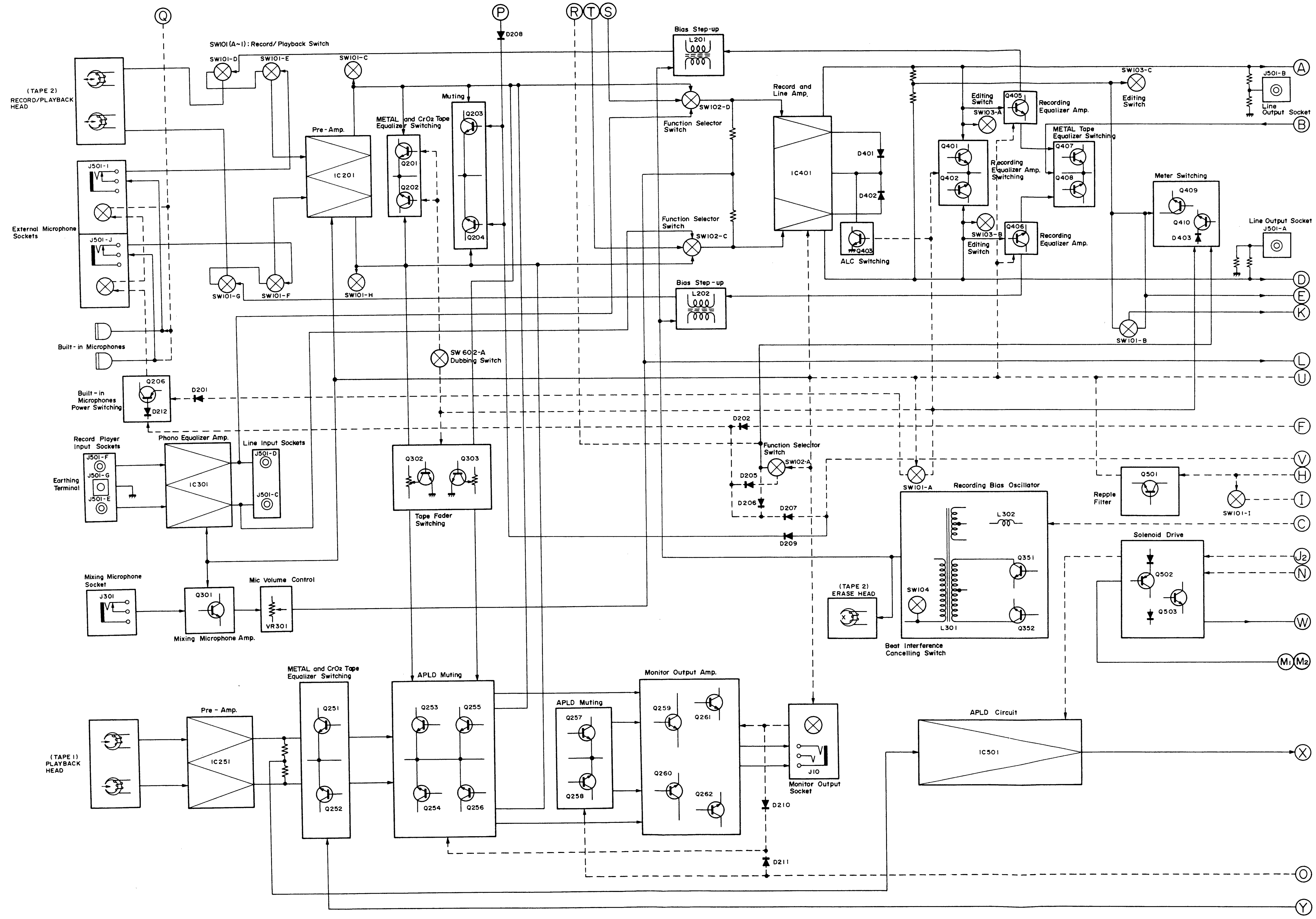

Q
P
D208
R T S
SW101(A~I): Record/Playback Switch
SW101-D
SW101-E
SW101-C
(TAPE 2) RECORD/PLAYBACK HEAD
Pre-Amp.
IC201
METAL and CrO2 Tape Equalizer Switching
Q201
Q202
Muting
Q203
Q204
J501-I
External Microphone Sockets
J501-J
SW101-G
SW101-F
SW101-H
Built-in Microphones
Built-in Microphones Power Switching
Q206
D212
D201
SW 602-A Dubbing Switch
Record Player Input Sockets
J501-F
J501-G
J501-E
Earthing Terminal
Phono Equalizer Amp.
IC301
Line Input Sockets
J501-D
J501-C
Q302
Q303
Tape Fader Switching
Mixing Microphone Socket
J301
Q301
Mixing Microphone Amp.
Mic Volume Control
VR301
Bias Step-up
L201
Function Selector Switch
SW102-D
SW102-C
Bias Step-up
L202
Record and Line Amp.
IC401
D401
D402
Q403
ALC Switching
Editing Switch
SW103-A
Q401
Q402
Q405
Recording Equalizer Amp.
Recording Equalizer Amp. Switching
SW103-B
Editing Switch
Q406
Recording Equalizer Amp.
METAL Tape Equalizer Switching
Q407
Q408
SW103-C
Editing Switch
J501-B
Line Output Socket
Meter Switching
Q409
Q410
D403
Line Output Socket J501-A
SW101-B
A
B
D
E
K
L
U
F
V
H
I
C
J2
N
W
M1 M2
X
O
Y
D202
Function Selector Switch
SW102-A
D205
D206
D207
D209
SW101-A
Recording Bias Oscillator
L302
Q351
Q352
L301
SW104
(TAPE 2) ERASE HEAD
Beat Interference Cancelling Switch
Q501
Repple Filter
SW101-I
Solenoid Drive
Q502
Q503
METAL and CrO2 Tape Equalizer Switching
Q251
Q252
(TAPE 1) PLAYBACK HEAD
Pre-Amp.
IC251
APLD Muting
Q253
Q255
Q254
Q256
APLD Muting
Q257
Q258
Monitor Output Amp.
Q259
Q261
Q260
Q262
J10
Monitor Output Socket
D210
D211
APLD Circuit
IC501

Figure 17 BLOCK DIAGRAM (2/2)

NOTES ON SCHEMATIC DIAGRAM

REF. NO.	SWITCH	POSITION
SW1 (A∼ J)	Wave-band selector	FM-SW2–SW1–AM
SW101 (A∼I)	Record/Playback	Record–Playback
SW102 (A,C,D)	Function selector	tape–radio–phono/line in
SW103 (A∼C)	Editing	on–off
SW104	Beat interference cancelling	A–B
SW601B	Deck 1 tape selector	METAL/$\mathrm{CrO_2}$–normal
SW602 (A,B)	Deck 2 tape selector	METAL–$\mathrm{CrO_2}$–normal
SW603A	Mixing	on–off–off
SW603B	FM mode selector	stereo–stereo–mono
SW603D	FM muting	on–off–off
SW604A	Dubbing	on–off
SW605	APLD down	on–off
SW606	APLD up	on–off
SW701	Power	on–off/sleep
SW702 (GF-515 only)	Voltage selector	110V–220V–240V
SW703	AC/DC selector	AC–DC
SW801	Deck 2 fast forward wind/skip (cue) key interlocking	on–off
SW802	Deck 2 rewind/review key interlocking	on–off
SW803, 805	Deck 2 function key lock lever interlocking	on–off
SW806	Deck 1 APLD forward key interlocking	on–off
SW807	Deck 1 APLD reverse key interlocking	on–off
SW808	Deck 1 fast forward wind/skip (cue) key interlocking	on–off
SW809	Deck 1 rewind/review key interlocking	on–off
SW810, 812	Deck 1 function key lock lever interlocking	on–off

1. Frequency range: AM; 525 kHz to 1605 kHz
   SW1; 2.3 MHz to 7.3 MHz
   SW2; 7.3 MHz to 22 MHz
   FM; 87.6 MHz to 108 MHz
2. Intermediate frequency:
   AM/SW1/SW2; 455 kHz
   FM; 10.7 kHz
3. Resistor:
   - Unless otherwise specified, any resistance is expressed in ohms. K= 1000 ohms and M= 1000K ohms. The rated power is 1/4 W.
   - The symbol "-ʌʌʌ-" means ordinary resistor and the symbol "-ʌʌʌ-" means printed resistor.
4. Capacitor:
   - Unless otherwise specified, any capacitance is expressed in microfarad. P= picofarad
   - The types of capacitors are seen from the symbols ML (mylar capacitor), Styrol (polystyrene film capacitor) and CH (temperature compensating ceramic capacitor).
5. Electrolytic capacitor:
   The expression "capacitance/withstand voltage" is used.
6. The "SCHEMATIC DIAGRAM (GF-515) (1/3)" in Figure 23 and "SCHEMATIC DIAGRAM (GF-515C) (3/3)" in Figure 31 are the same except some difference in type of the indicator PWB and power PWB from each other.
7. In "Wiring Side of Indicator Printed Wiring Board" on page 26, the blue-marked parts refer to the parts used only for the GF-515C.
8. - The indicated voltage in each section is the one measured with VTVM between such a section and the chassis with no signal being given.
   - Voltages for the radio circuit are the measurements available when the function selector switch is set at "radio" position with the highest received frequency. The values with the term FM or AM are measured when the wave-band selector switch is set at "FM" or "SW1" ("SW2" or "AM") position.
   - Voltages for the integrated circuit (IC1) are measured when the wave-band selector switch is set at "FM" position: the parenthesized values are found when the FM muting switch is set at "on" position.
   - Voltages for the integrated circuit (IC2) are measured when the wave-band selector switch is set at "FM" position: the parenthesized values are found when the FM mode selector switch is set at "mono" position.

- Voltages for the integrated circuits (IC501 and IC602) and transistors (Q605, Q608 and Q609) are measured when the APLD forward key is being pushed.
- Voltages for transistors (Q201 and Q202) are measured when the Deck 2 tape selector switch is set at "METAL" or "$\mathrm{CrO_2}$" position.
- Voltages for transistors (Q203 and Q204) are measured when the deck 2 is put in play mode: the parenthesized values are found when it is in cue (skip) mode.
- Voltage for transistor (Q206) is measured through built-in microphone when the unit is in record mode (with the function selector switch at "tape" position and the record key pushed): the parenthesized value is found when the dubbing switch is set at "on" position to make the built-in microphone inoperative.
- Voltages for transistors (Q251 and Q252) are measured when the deck 1 tape selector switch is set at "METAL" position.
- Voltages for transistors (Q253∼Q258, Q502 and Q503) are measured when the APLD forward key is being pushed.
- Voltages for transistors (Q259∼Q262) are measured when the headphones plug is inserted into the deck 1 monitoring output socket.
- Voltages for transistors (Q351, Q352, Q407 and Q408) are measured when the unit is in record mode with the deck 2 tape selector switch set at "METAL" position.
- Voltages for transistors (Q409 and Q410) are measured when the unit is in record mode with the function selector switch at "radio" and the deck 2 tape selector switch at "METAL" position.
- Voltage at the collector of transistor (Q606) is measured when the APLD indicators LEDs are lighting up in the order of "1", "2", "3" and "4", with the APLD forward key and APLD up switch pushed in succession.
- Voltage at the collector of transistor (Q607) is measured when the APLD forward key is pushed to light up the APLD indicators LED: it is 0.1 V, 9.0 V or 4.1 V with "1" LED, "2"∼"4" LEDs, or "5" LED lighting up.
- Voltage for transistor (Q801) is measured when the APLD forward key is pushed.

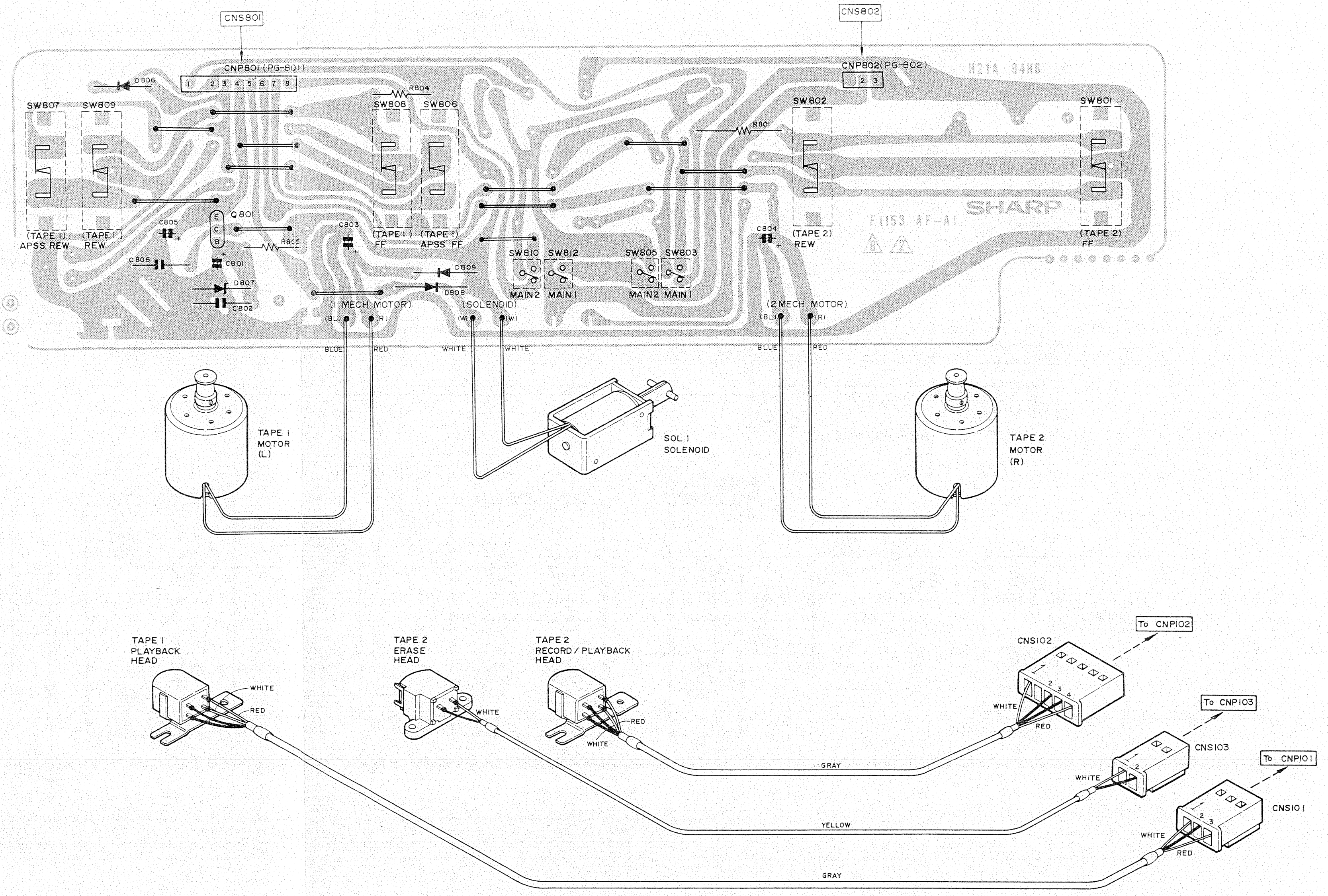

CNS801
CNP801 (PG-801)
1 2 3 4 5 6 7 8
D806
SW807
SW809
(TAPE 1) APSS REW
(TAPE 1) REW
C805
Q801
E C B
C806
C801
D807
C802
R805
R804
SW808
SW806
(TAPE 1) FF
(TAPE 1) APSS FF
C803
D809
D808
SW810 SW812
MAIN2 MAIN1
SW805 SW803
MAIN2 MAIN1
R801
(1 MECH MOTOR)
(BL) (R)
(SOLENOID)
(W) (W)
(2 MECH MOTOR)
(BL) (R)
CNS802
CNP802 (PG-802)
1 2 3
SW802
(TAPE 2) REW
C804
SW801
(TAPE 2) FF
SHARP
F1153 AF-A1
H21A 94HB
BLUE
RED
WHITE
WHITE
BLUE
RED
TAPE 1 MOTOR (L)
SOL 1 SOLENOID
TAPE 2 MOTOR (R)
TAPE 1 PLAYBACK HEAD
TAPE 2 ERASE HEAD
TAPE 2 RECORD / PLAYBACK HEAD
WHITE
RED
WHITE
RED
WHITE
CNS102
To CNP102
To CNP103
CNS103
To CNP101
CNS101
WHITE
RED
WHITE
WHITE
RED
GRAY
YELLOW
GRAY

Figure 19 WIRING SIDE OF PRINTED WIRING BOARD (1/5)

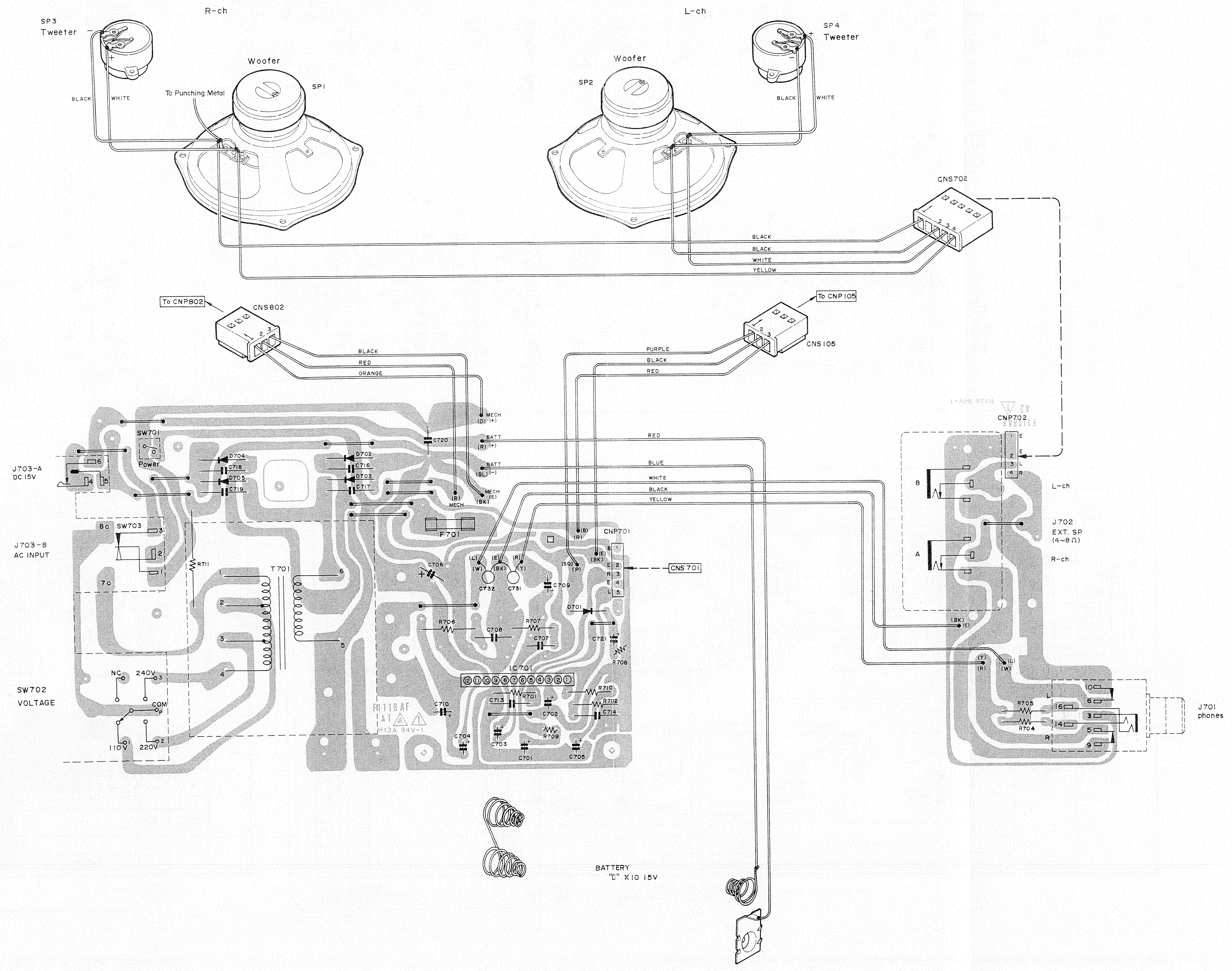
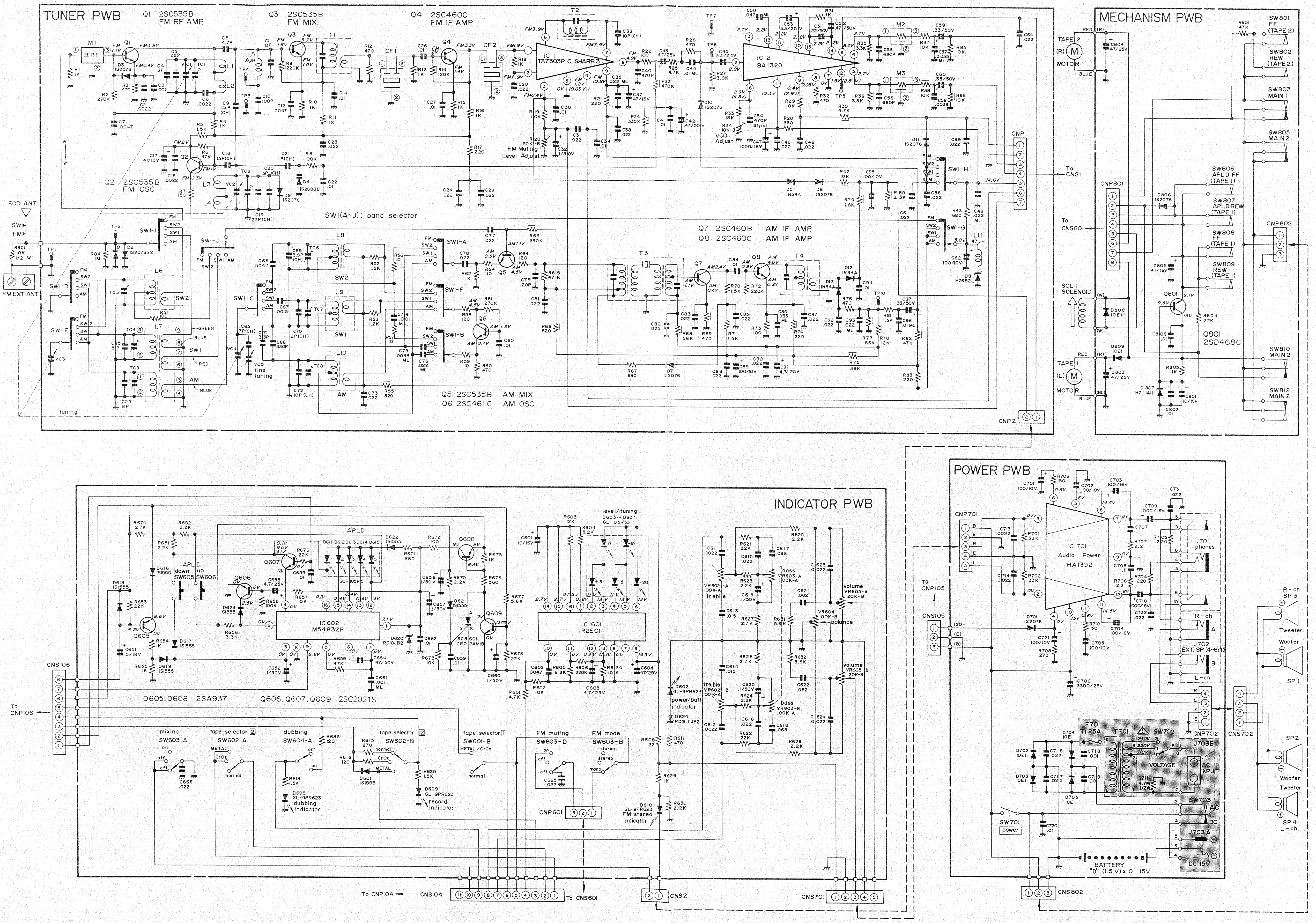

R-ch
L-ch
SP3
Tweeter
SP4
Tweeter
Woofer
SP1
Woofer
SP2
BLACK
WHITE
To Punching Metal
CNS702
BLACK
BLACK
WHITE
YELLOW
To CNP802
CNS802
To CNP105
CNS105
BLACK
RED
ORANGE
PURPLE
BLACK
RED
MECH (O) (+)
BATT (R) (+)
BATT (BL) (−)
MECH (E) (BK)
MECH
SW701
Power
J703-A
DC 15V
J703-B
AC INPUT
SW703
SW702
VOLTAGE
NC
240V
COM
110V
220V
R711
T701
D704
C718
D705
C719
D702
C716
D703
C717
C720
F701
C706
C732
C731
C709
CNP701
CNS701
D701
R706
C708
R707
C707
C721
R708
IC701
C713
R701
R710
R702
C702
C714
C710
C704
C703
R709
C701
C705
RED
BLUE
WHITE
BLACK
YELLOW
CNP702
B
A
L-ch
J702
EXT. SP
(4~8Ω)
R-ch
R705
R704
J701
phones
BATTERY
"D" X10 15V

Figure 21 WIRING SIDE OF PRINTED WIRING BOARD (GF-515) (2/5)


TUNER PWB
Q1 2SC535B FM RF AMP.
Q3 2SC535B FM MIX.
Q4 2SC460C FM IF AMP.
Q2 2SC535B FM OSC
IC 1 TA7303P-C SHARP 3
IC 2 BA1320
FM Muting Level Adjust
VCO Adjust
SW1(A~J): band selector
Q7 2SC460B AM IF AMP.
Q8 2SC460C AM IF AMP.
Q5 2SC535B AM MIX
Q6 2SC461C AM OSC
ROD. ANT.
FM EXT. ANT.
fine tuning
tuning
To CNS1
To CNS801
CNP 1
CNP 2
MECHANISM PWB
TAPE 2 MOTOR
TAPE 1 MOTOR
SOL 1 SOLENOID
Q801 2SD468C
SW801 FF (TAPE 2)
SW802 REW (TAPE 2)
SW803 MAIN 1
SW805 MAIN 2
SW806 APLD FF (TAPE 1)
SW807 APLD REW (TAPE 1)
SW808 FF (TAPE 1)
SW809 REW (TAPE 1)
SW810 MAIN 2
SW812 MAIN 2
CNP801
CNP802
INDICATOR PWB
APLD
IC 602 M54832P
IC 601 IR2E01
level/tuning D603~D607 GL-105R53
Q605, Q608 2SA937
Q606, Q607, Q609 2SC2021S
mixing SW603-A
tape selector 2 SW602-A
dubbing SW604-A
tape selector 2 SW602-B
tape selector 1 SW601-B
FM muting SW603-D
FM mode SW603-B
treble
bass
volume
balance
power/batt indicator
dubbing indicator
record indicator
FM stereo indicator
To CNP106
CNS106
To CNP104 ← CNS104
To CNS601
CNP601
CNS2
CNS701
POWER PWB
IC 701 Audio Power HA1392
CNP701
To CNP105
CNS105
J701 phones
J702 EXT. SP (4~8Ω)
R-ch
L-ch
CNP702
CNS702
F701 T1.25A
T701
SW702
VOLTAGE
J703B AC INPUT
SW703
J703 A
DC 15V
SW701 power
BATTERY "D" (1.5V)×10 15V
CNS802
R-ch SP3 Tweeter
Woofer SP1
SP2 Woofer Tweeter
SP4 L-ch

Specifications or wiring diagrams of this model are subject to change for improvement without prior notice.

Figure 23 SCHEMATIC DIAGRAM (GF-515) (1/3)

NOTES:
Parts marked with " ⚠ " (▭) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

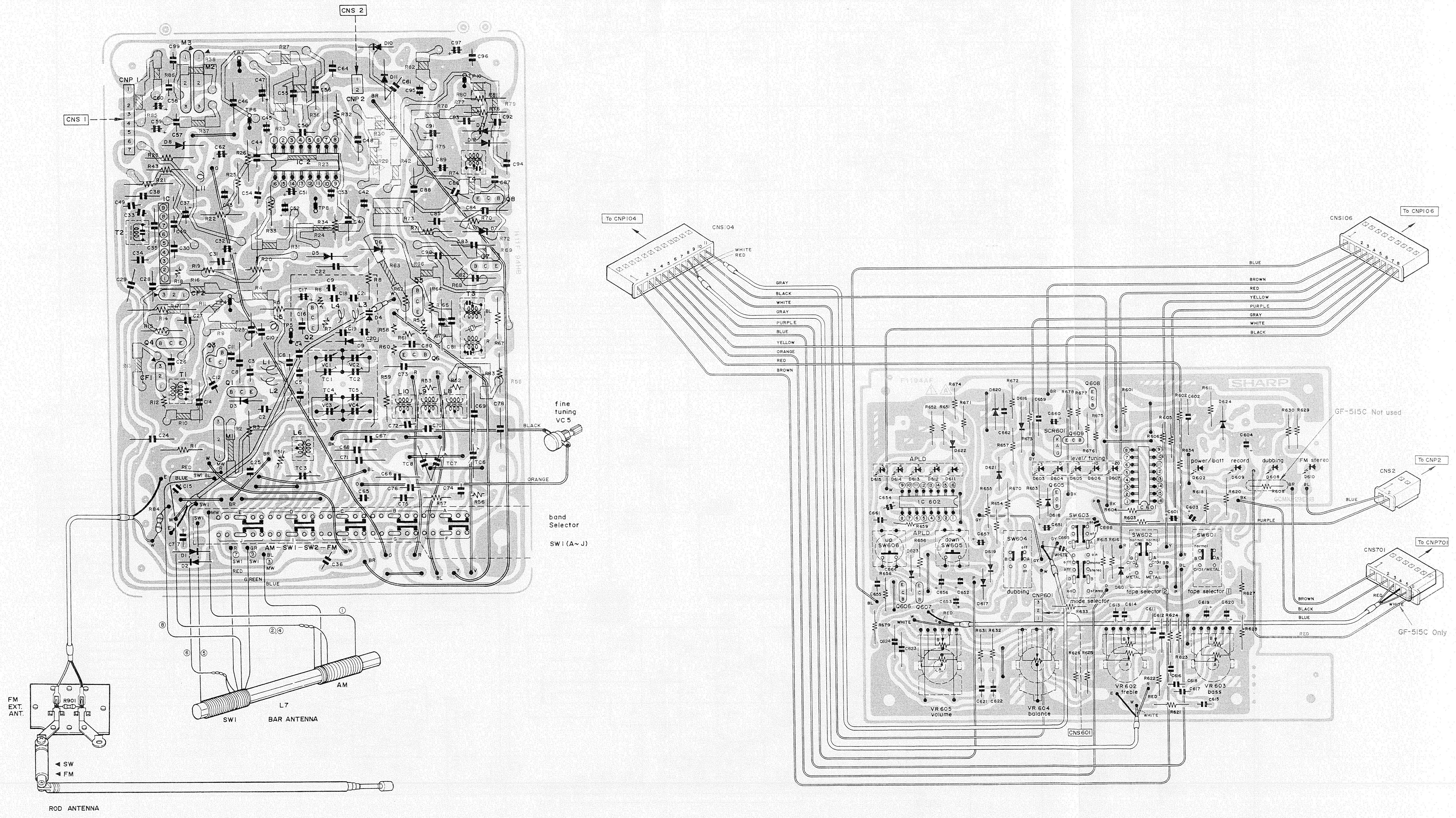
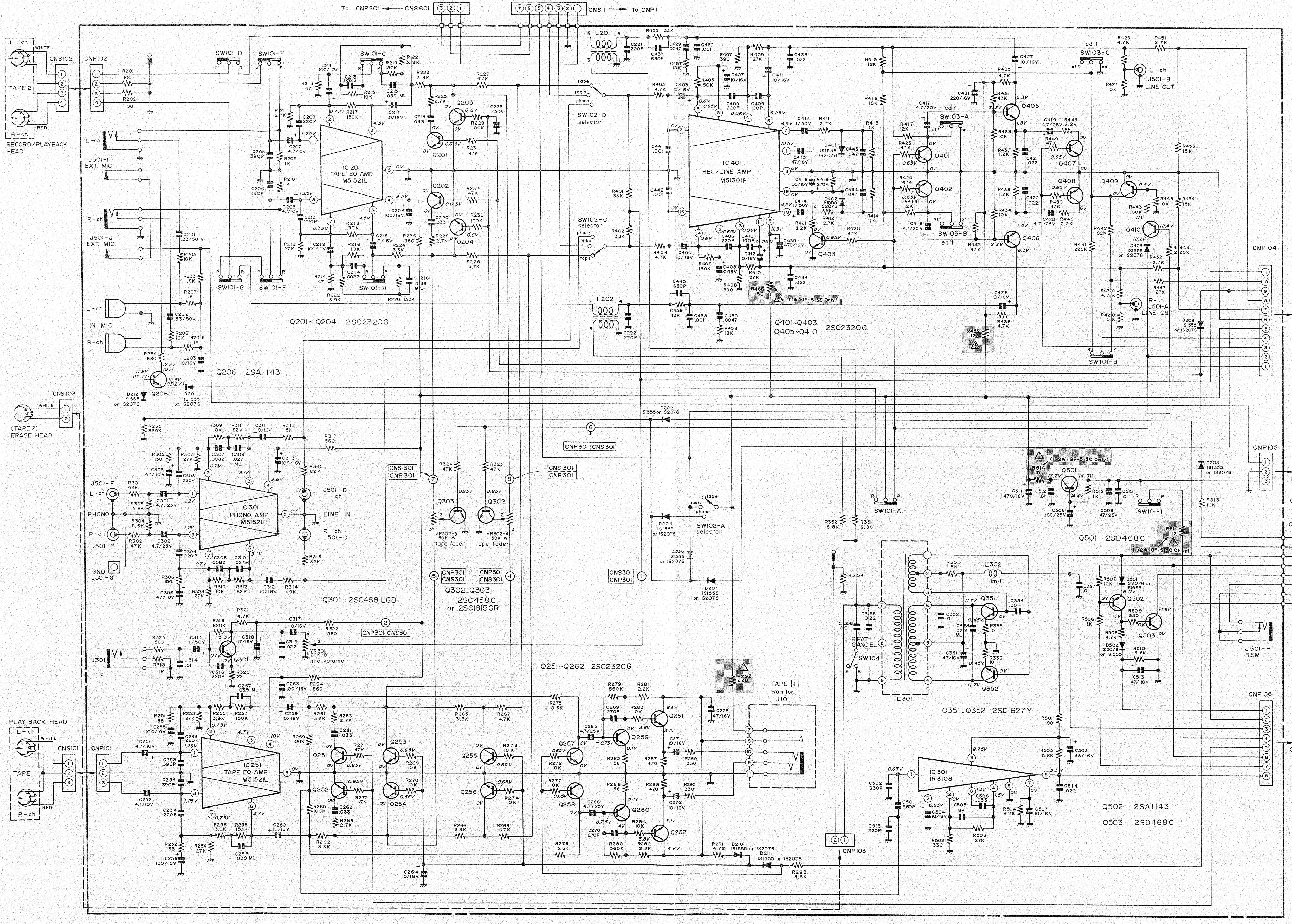

CNS 2
CNS 1
CNP 1
CNP 2
IC 2
IC 1
fine tuning VC 5
BLACK
ORANGE
band Selector
SW1 (A~J)
AM-SW1-SW2-FM
FM EXT. ANT.
R901
◄ SW
◄ FM
ROD ANTENNA
SW1
L7
BAR ANTENNA
AM
To CNP104
CNS104
WHITE
RED
GRAY
BLACK
WHITE
GRAY
PURPLE
BLUE
YELLOW
ORANGE
RED
BROWN
CNS106
To CNP106
BLUE
BROWN
RED
YELLOW
PURPLE
GRAY
WHITE
BLACK
SHARP
GF-515C Not used
To CNP2
CNS2
To CNP701
CNS701
GF-515C Only
APLD
IC 602
IC 601
SCR601
level/ tuning
power/batt
record
dubbing
FM stereo
SW606 up
SW605 down
SW604
SW603
SW602
SW601
dubbing
mode selector
tape selector ②
tape selector ①
CNP601
VR 605 volume
VR 604 balance
VR 602 treble
VR 603 bass
CNS601

Figure 25 WIRING SIDE OF PRINTED WIRING BOARD (3/5)


To CNP601 ← CNS601
CNS1 → To CNP1
RECORD/PLAYBACK HEAD
TAPE 2
CNS102
CNP102
J501-I EXT. MIC
J501-J EXT. MIC
IN MIC
CNS103
(TAPE 2) ERASE HEAD
IC 201 TAPE EQ AMP M5152IL
Q201~Q204 2SC2320G
Q206 2SA1143
IC 401 REC/LINE AMP M5130IP
Q401~Q403 Q405~Q410 2SC2320G
SW102-D selector
SW102-C selector
SW103-A edit
SW103-B edit
SW103-C edit
J501-B LINE OUT
J501-A LINE OUT
SW101-B
CNP104
To CNS104
IC 301 PHONO AMP M5152IL
J501-F PHONO
J501-E
GND J501-G
J501-D LINE IN
J501-C
Q301 2SC458 LGD
VR302-B 50K-W tape fader
VR302-A 50K-W tape fader
Q302, Q303 2SC458C or 2SC1815GR
SW102-A selector
SW101-A
Q501 2SD468C
(1/2W:GF-515C Only)
SW101-I
CNP105
To CNS105
To CNP801
CNS801
J301 mic
VR301 20K-B mic volume
BEAT CANCEL SW104
L301
Q351, Q352 2SC1627Y
J501-H REM
CNP106
To CNS106
PLAY BACK HEAD
TAPE 1
CNS101
CNP101
IC251 TAPE EQ AMP M5152IL
Q251~Q262 2SC2320G
TAPE 1 monitor J101
CNP103
IC501 IR3108
Q502 2SA1143
Q503 2SD468C
(1W:GF-515C Only)

Specifications or wiring diagrams of this model are subject to change for improvement without prior notice.

Figure 27 SCHEMATIC DIAGRAM (2/3)

NOTES (GF-515C Only):
Parts marked with " ⚠ " (▨) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

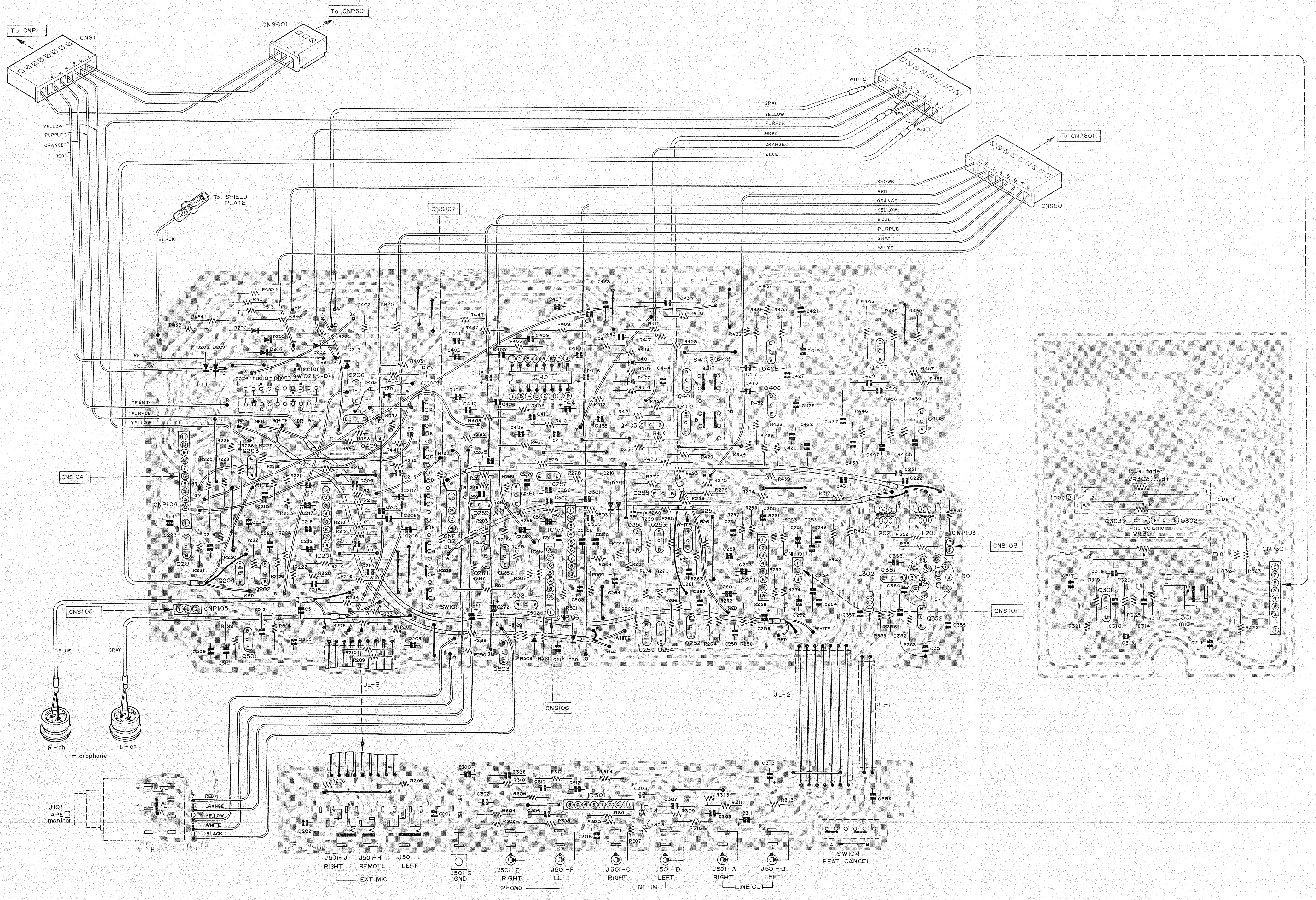
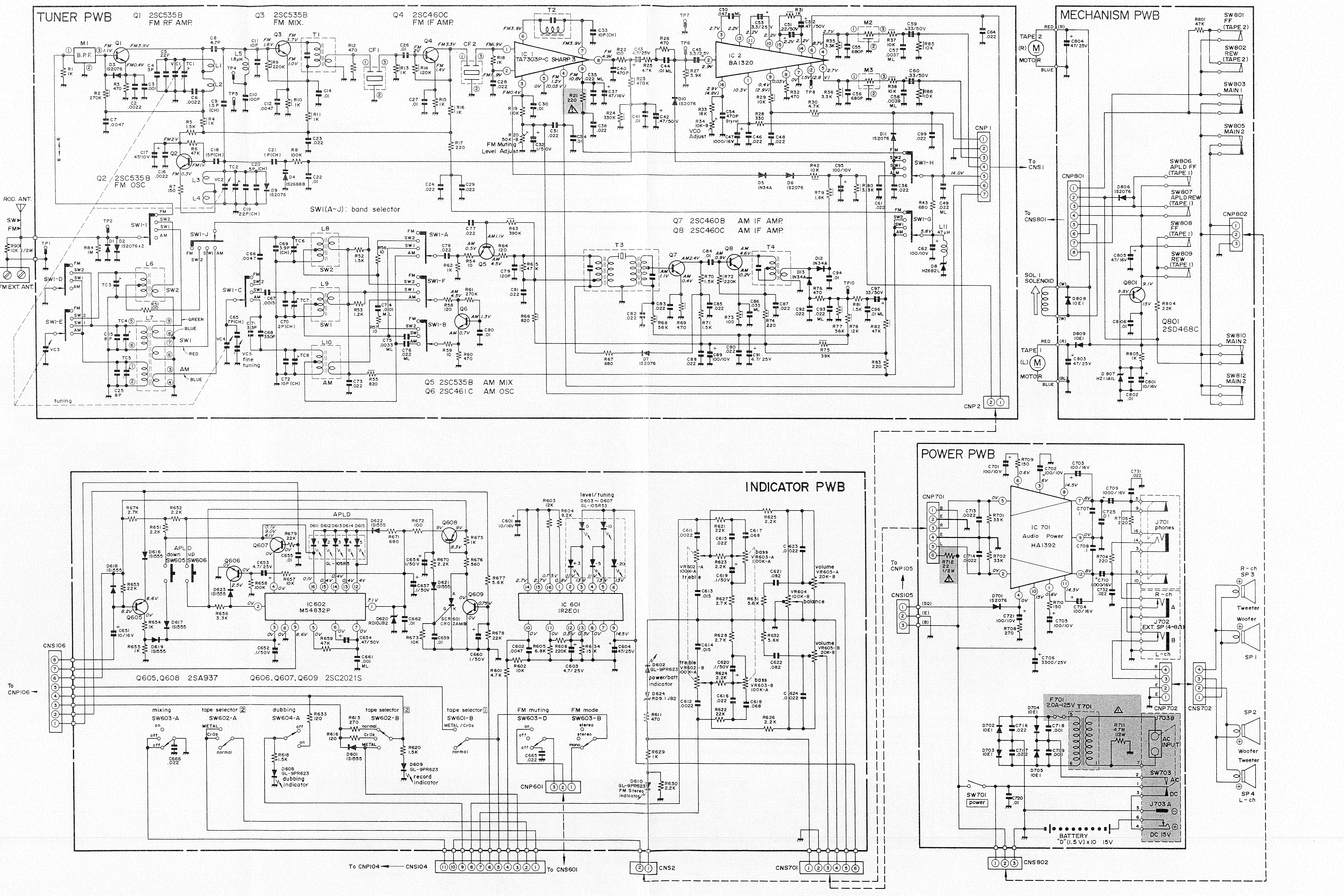

To CNP1
CNS1
CNS601
To CNP601
CNS301
To CNP801
CNS801
WHITE
GRAY
YELLOW
PURPLE
GRAY
ORANGE
BLUE
RED
BROWN
RED
ORANGE
YELLOW
BLUE
PURPLE
GRAY
WHITE
YELLOW
PURPLE
ORANGE
RED
To SHIELD PLATE
BLACK
CNS102
CNS104
CNP104
CNS105
CNP105
CNS106
CNS103
CNP103
CNS101
CNP101
CNP106
CNP102
CNP301
selector SW102(A~D)
tape - radio - phono
play
record
SW103(A~C)
edit
off
on
SW101
IC401
IC501
IC201
IC251
IC301
tape fader
VR302(A,B)
tape 2
tape 1
mic volume
VR301
max
min
J301
mic
L201
L202
L301
L302
JL-1
JL-2
JL-3
R-ch
L-ch
microphone
J101
TAPE 1
monitor
RED
ORANGE
YELLOW
WHITE
BLACK
J501-J
RIGHT
J501-H
REMOTE
J501-I
LEFT
EXT. MIC
J501-G
GND
J501-E
RIGHT
J501-F
LEFT
PHONO
J501-C
RIGHT
J501-D
LEFT
LINE IN
J501-A
RIGHT
J501-B
LEFT
LINE OUT
SW104
BEAT CANCEL
SHARP

Figure 29 WIRING SIDE OF PRINTED WIRING BOARD (4/5)


TUNER PWB
Q1 2SC535B FM RF AMP.
Q3 2SC535B FM MIX.
Q4 2SC460C FM IF AMP.
Q2 2SC535B FM OSC
IC 1 TA7303P-C SHARP 3
IC 2 BA1320
FM Muting Level Adjust
VCO Adjust
SW1(A~J): band selector
Q7 2SC460B AM IF AMP.
Q8 2SC460C AM IF AMP.
Q5 2SC535B AM MIX
Q6 2SC461C AM OSC
ROD. ANT.
FM EXT. ANT.
VC5 fine tuning
tuning
CNP 1
To CNS1
CNP 2
MECHANISM PWB
TAPE 2
MOTOR
TAPE 1
SOL 1 SOLENOID
Q801 2SD468C
CNP801
CNP802
To CNS801
SW801 FF (TAPE 2)
SW802 REW (TAPE 2)
SW803 MAIN 1
SW805 MAIN 2
SW806 APLD FF (TAPE 1)
SW807 APLD REW (TAPE 1)
SW808 FF (TAPE 1)
SW809 REW (TAPE 1)
SW810 MAIN 2
SW812 MAIN 2
INDICATOR PWB
APLD
IC 602 M54832P
IC 601 IR2E01
level/tuning D603~D607 GL-105R53
Q605, Q608 2SA937
Q606, Q607, Q609 2SC2021S
mixing SW603-A
tape selector 2 SW602-A
dubbing SW604-A
tape selector 2 SW602-B
tape selector 1 SW601-B
FM muting SW603-D
FM mode SW603-B
treble
bass
volume
balance
power/batt indicator
FM Stereo indicator
dubbing indicator
record indicator
To CNP106
CNS106
To CNP104
CNS104
To CNS601
CNP601
CNS2
CNS701
POWER PWB
IC 701 Audio Power HA1392
CNP701
To CNP105
CNS105
J701 phones
J702 EXT. SP (4~8Ω)
R-ch
L-ch
CNP702
CNS702
SP 3 R-ch Tweeter Woofer
SP 1
SP 2 Woofer Tweeter
SP 4 L-ch
F701 2.0A-125V
T701
J703B AC INPUT
SW703 AC DC
J703A
DC 15V
SW701 power
BATTERY "D"(1.5V)×10 15V
CNS802

Specifications or wiring diagrams of this model are subject to change for improvement without prior notice.

Figure 31 SCHEMATIC DIAGRAM (GF-515C) (3/3)

NOTES:
Parts marked with " ⚠ " (▨) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

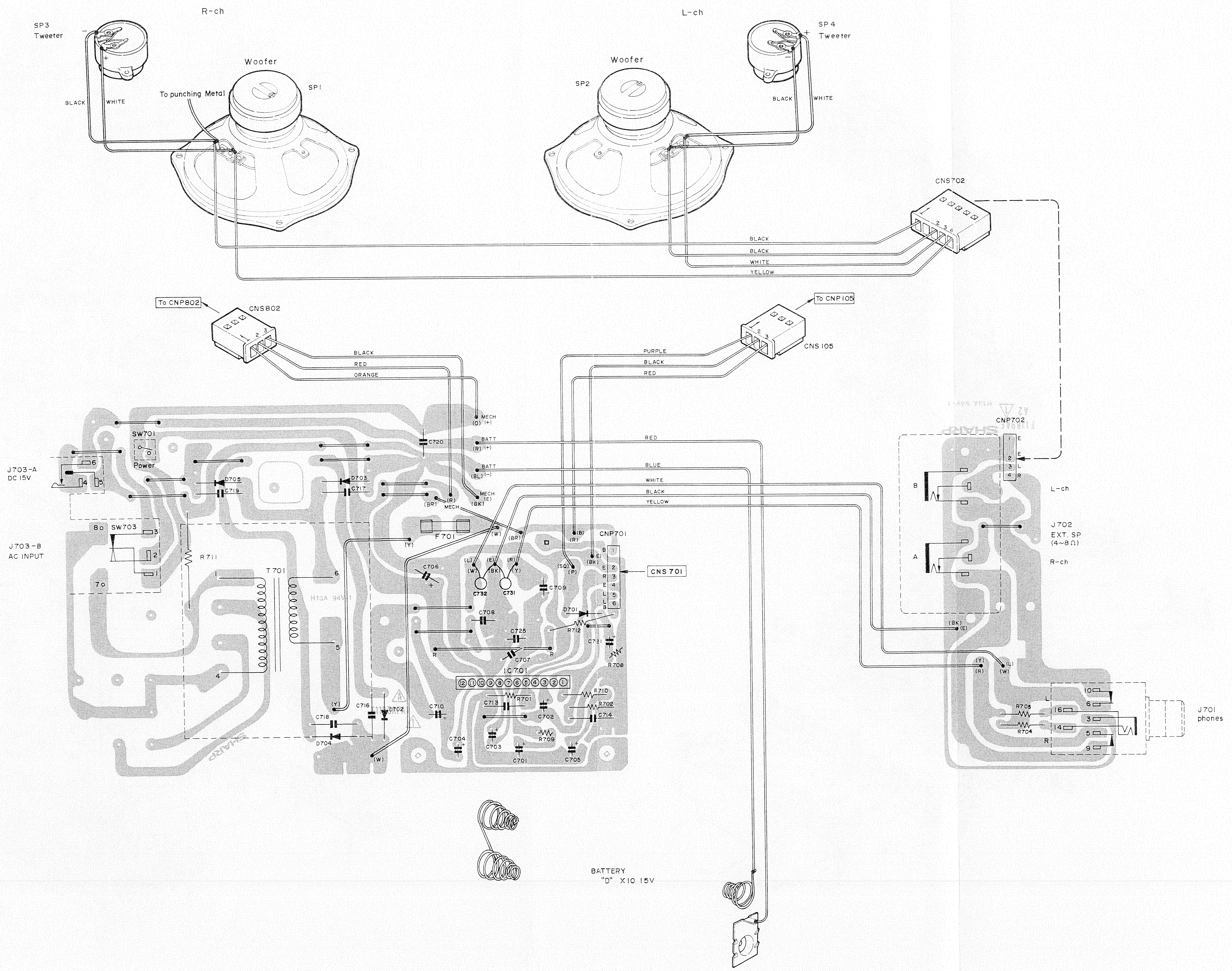

R-ch
L-ch
SP3
Tweeter
SP 4
Tweeter
Woofer
SP1
Woofer
SP2
To punching Metal
BLACK
WHITE
CNS702
BLACK
BLACK
WHITE
YELLOW
To CNP802
CNS802
BLACK
RED
ORANGE
To CNP105
CNS105
PURPLE
BLACK
RED
MECH
BATT
RED
BLUE
WHITE
BLACK
YELLOW
SW701
Power
J703-A
DC 15V
J703-B
AC INPUT
SW703
R711
T701
F701
C720
D705
C719
D703
C717
CNP701
CNS 701
C706
C732
C731
C709
C708
C725
C707
IC701
D701
R712
C721
R708
R710
R701
R702
C713
C702
C714
R709
C710
C704
C703
C701
C705
C718
C716
D702
D704
CNP702
L-ch
J702
EXT. SP
(4~8 Ω)
R-ch
J701
phones
R703
R704
BATTERY
"D" X10 15V

Figure 33 WIRING SIDE OF PRINTED WIRING BOARD (GF-515C) (5/5)

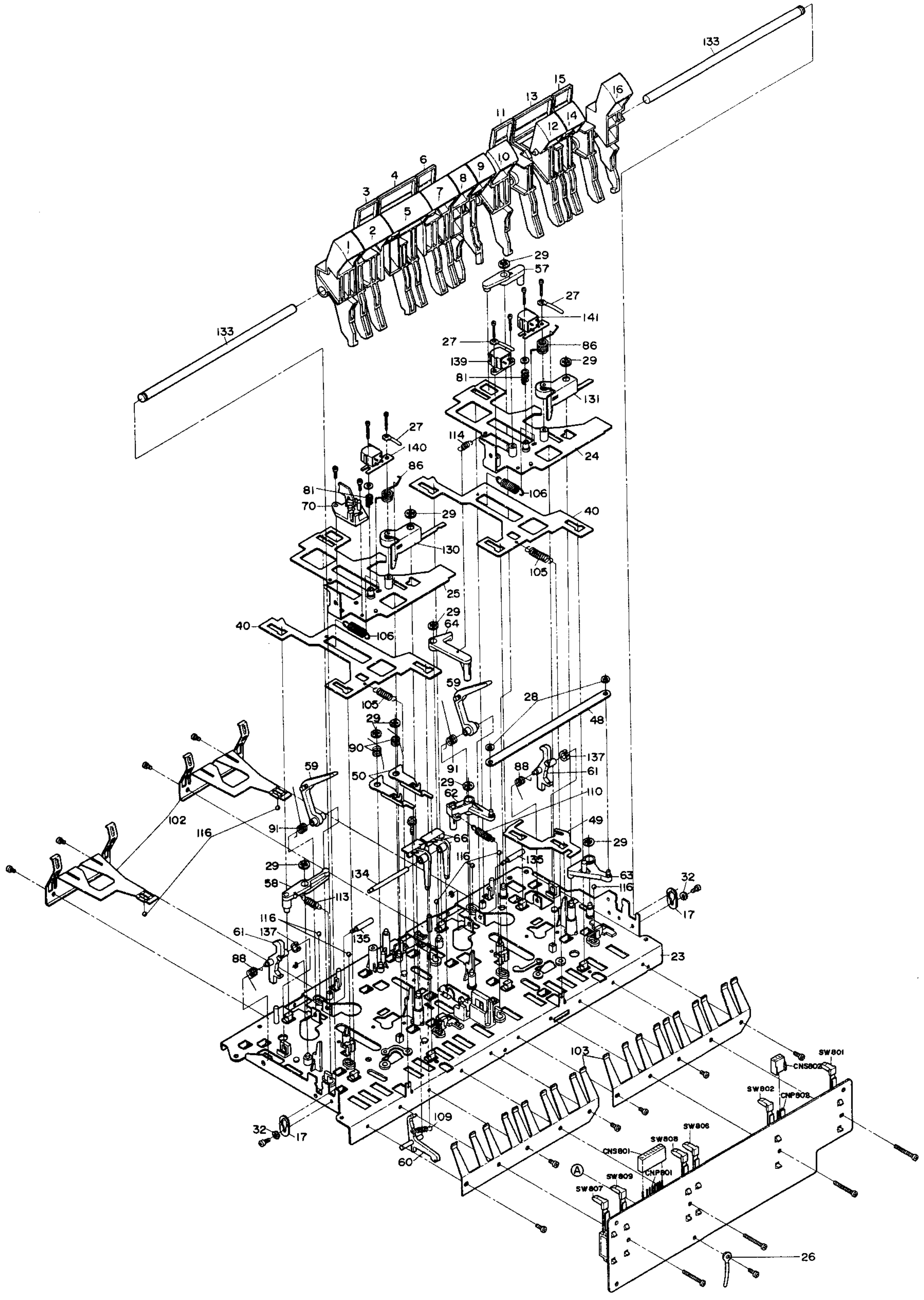

133
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
29
57
27
141
86
139
81
131
24
114
140
106
40
70
130
105
25
64
59
28
48
137
61
88
110
49
63
32
17
23
102
116
91
58
113
134
135
66
62
90
50
103
109
60
26
SW801
CNS806
SW802
CNP802
SW806
SW808
CNS801
CNP801
Ⓐ
SW809
SW807

Figure 35 MECHANISM EXPLODED TOP VIEW

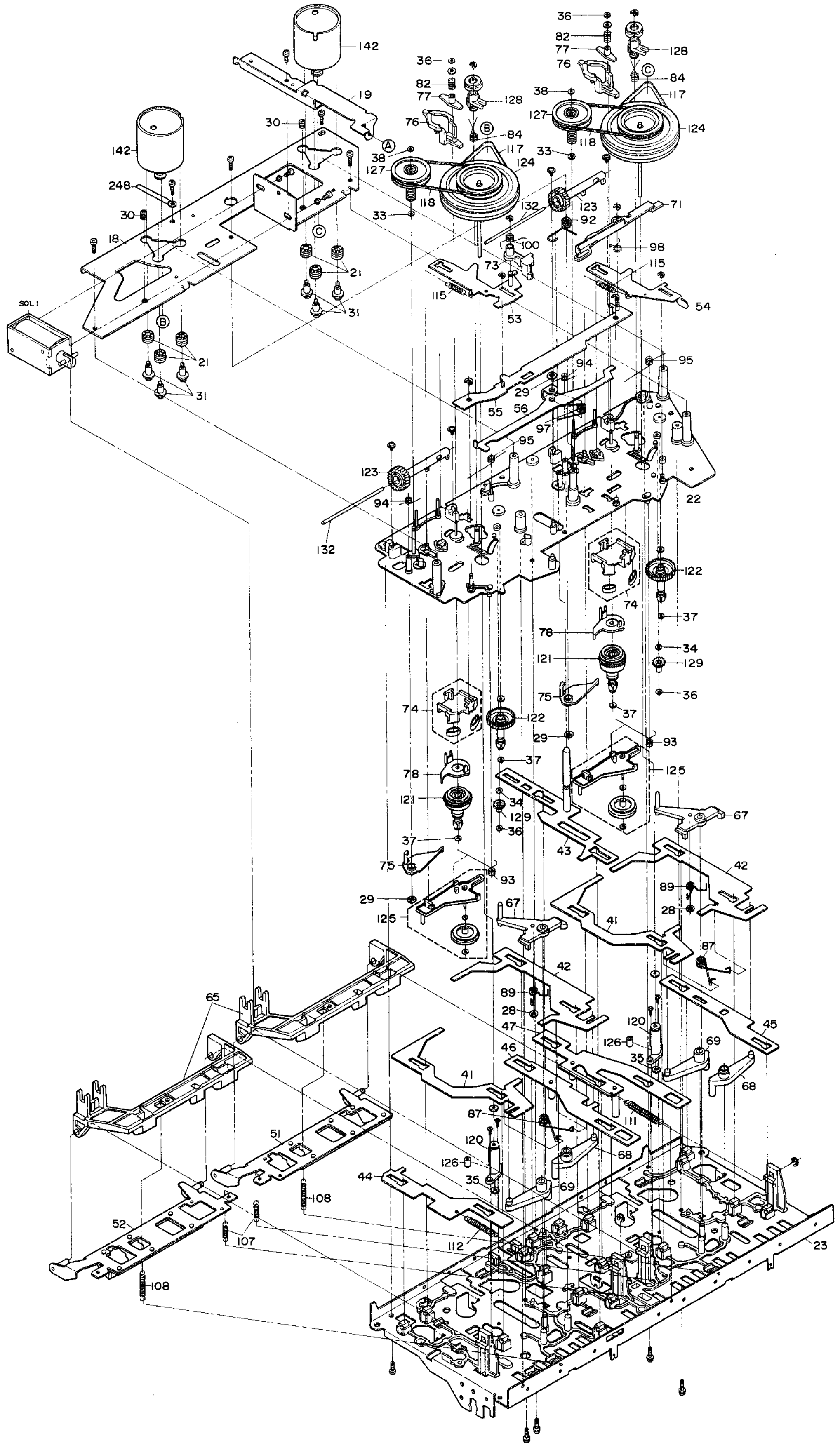

36
82
77
76
128
84
117
38
127
124
118
33
142
19
30
248
18
Ⓐ
Ⓑ
Ⓒ
21
31
SOL1
132
123
92
100
73
115
53
71
98
54
95
94
29
55
56
97
22
122
74
37
34
129
78
121
75
93
125
67
43
42
89
28
41
87
45
120
126
35
69
68
47
46
111
65
51
108
44
112
52
107
23

Figure 36 MECHANISM EXPLODED BOTTOM VIEW

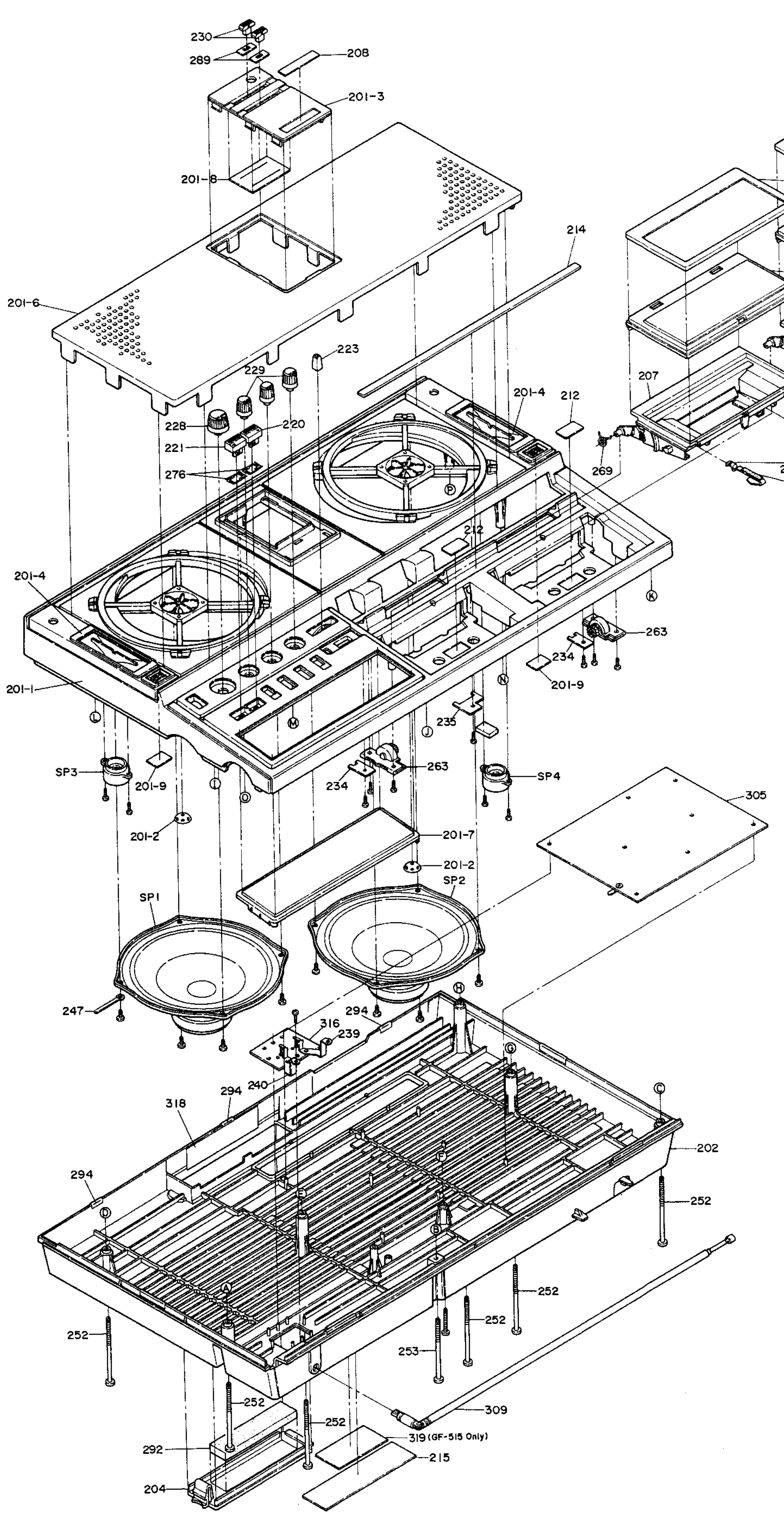

230
289
208
201-3
201-8
201-6
214
210
268
205
206
223
229
228
220
221
276
201-4
212
207
269
275
294
212
201-4
263
234
201-9
201-1
235
SP3
201-9
201-2
263
234
SP4
305
201-7
201-2
SP2
SP1
247
294
316
239
318
294
240
202
252
252
252
253
252
252
309
292
319 (GF-515 Only)
215
204

Figure 37 CABINET EXPLODED VIEW (1/2)

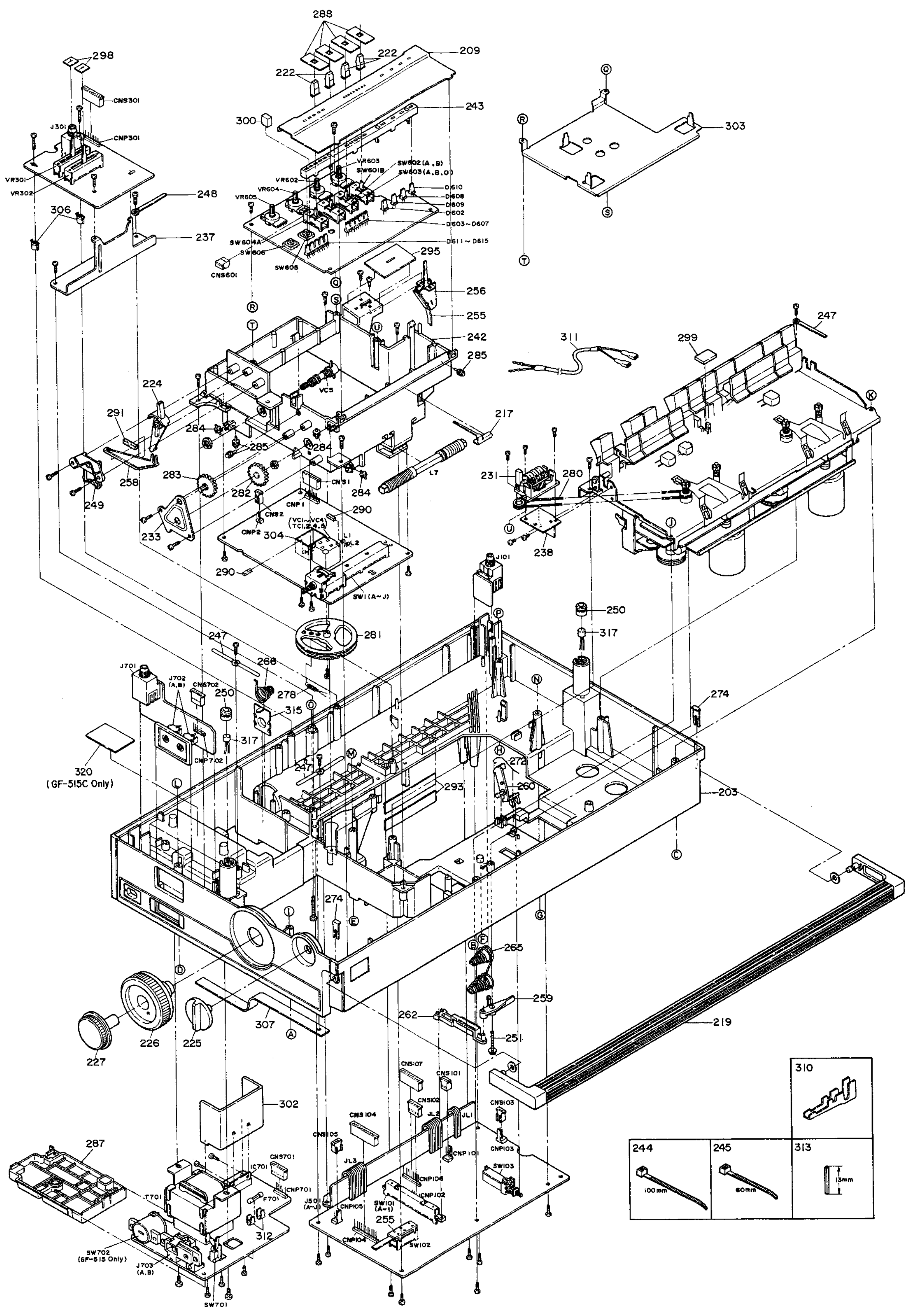

288
298
222
209
CNS301
243
J301
CNP301
300
303
VR301
VR302
248
VR603
SW602(A,B)
SW601B
SW603(A,B,C)
VR602
VR604
VR605
D610
D608
D609
D602
D603~D607
D611~D615
306
237
SW601A
SW606
SW605
CNS601
295
256
255
242
285
311
299
247
217
224
291
284
285
284
VC5
258
249
283
282
CN51
CNP1
CN52
284
290
233
CNP2
304
VC1~VC4
TC1,2,4,5
L1
L2
290
SW1(A~J)
231
280
238
L7
J101
250
317
281
247
266
276
315
J701
J702 (A,B)
CNS702
250
317
CNP702
320
(GF-515C Only)
293
272
260
203
274
274
265
259
262
251
219
227
226
225
307
302
287
T701
CNS701
IC701
CNP701
F701
312
SW702
(GF-515 Only)
J703
(A,B)
SW701
CNS107
CNS101
CNS102
CNS104
CNS105
JL3
JL2
JL1
CNS103
CNP103
CNP101
CNP106
SW103
CNP102
J301
(A~J)
CNP105
SW101
(A~I)
CNP104
255
SW102
310
244
245
313
100mm
60mm
13mm

Figure 38 CABINET EXPLODED VIEW (2/2)

REPLACEMENT PARTS LIST

"HOW TO ORDER REPLACEMENT PARTS"

To have your order filled promptly and correctly, please furnish the following information.

1. MODEL NUMBER
2. REF. NO.
3. PART NO.
4. DESCRIPTION

NOTES: Parts marked with " ⚠ " (▨) are important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

INTEGRATED CIRCUITS

REF. NO.	PART NO.	DESCRIPTION	CODE
IC1	RH-IX1083AFZZ	FM IF Amp. (TA7303P-C SHARP 3)	AK
IC2	RH-IX1082AFZZ	PLL FM MPX Demodulator (BA1320)	AL
IC201	RH-IX1079AFZZ	Deck 2 Pre-amp. (M51521L)	AG
IC251	RH-IX1079AFZZ	Deck 1 Pre-amp. (M51521L)	AG
IC301	RH-IX1079AFZZ	Phono Equalizer Amp. (M51521L)	AG
IC401	VHIM51301P/-1	Record & Line Amp. (M51301P)	AK
IC501	VHIIR3108//-1	APLD Circuit (IR3108)	AK
IC601	VHIIR2E01//-1	Level/Tuning Indicators Drive Circuit (IR2E01)	AH
IC602	VHIM54832PA-1	APLD Indicators Drive Circuit (M54832P)	AQ
IC701	VHIHA1392//-1	Power Amp. (HA1392)	AR

TRANSISTORS

REF. NO.	PART NO.	DESCRIPTION	CODE
Q1	2SC535B	FM RF Amp. (VS2SC535-B/-1)	AC
Q2	2SC535B	FM Local Oscillator (VS2SC535-B/-1)	AC
Q3	2SC535B	FM Mixer (VS2SC535-B/-1)	AC
Q4	2SC460C	FM IF Amp. (VS2SC460-C/-1)	AC
Q5	2SC535B	AM Mixer (VS2SC535-B/-1)	AC
Q6	2SC461C	AM Local Oscillator (VS2SC461-C/-1)	AC
Q7	2SC460B	AM IF Amp. (VS2SC460-B/-1)	AC
Q8	2SC460C	AM IF Amp. (VS2SC460-C/-1)	AC
Q201,202	2SC2320G	Deck 2 Metal & CrO_2 Tape Equalizer Switching (VS2SC2320-G-1)	AB
Q203,204	2SC2320G	Deck 2 Review & Cue (Skip) Mode Muting (VS2SC2320-G-1)	AB
Q206	2SA1143	Built-in Microphone Power Switching (VS2SA1143//-1)	AB
Q251,252	2SC2320G	Deck 1 Metal & CrO_2 Tape Equalizer Switching (VS2SC2320-G-1)	AB
Q253~258	2SC2320G	APLD Muting (VS2SC2320-G-1)	AB
Q259~262	2SC2320G	Deck 1 Monitoring Output Amp. (VS2SC2320-G-1)	AB
Q301	2SC458LGD	Mixing Microphone Amp. (VS2SC458LGD-1)	AC
Q302,303	2SC458C or (2SC1815GR)	Tape Fader Switching (VS2SC458-C/-1, VS2SC1815GR-1)	AB AB
Q351,352	2SC1627Y	Recording Bias Oscillator (VS2SC1627Y/-1)	AD
Q401,402	2SC2320G	Recording Equalizer Amp. Switching (VS2SC2320-G-1)	AB
Q403	2SC2320G	ALC Switching (VS2SC2320-G-1)	AB
Q405,406	2SC2320G	Recording Equalizer Amp. (VS2SC2320-G-1)	AB
Q407,408	2SC2320G	Metal Tape Equalizer Switching (VS2SC2320-G-1)	AB
Q409,410	2SC2320G	Meter Switching (VS2SC2320-G-1)	AB
Q501	2SD468C	Repple Filter (VS2SD468-C/-1)	AD
Q502	2SA1143	Solenoid Drive (VS2SA1143//-1)	AB
Q503	2SD468C	Solenoid Drive(VS2SD468-C/-1)	AD
Q605	2SA937R	APLD Phase Inverter (VS2SA937-R/-1)	AC
Q606,607	2SC2021S	APLD Malfunction Prevention (VS2SC2021S/-1)	AB
Q608	2SA937R	APLD Power Switching (VS2SA937-R/-1)	AC
Q609	2SC2021S	APLD Power Switching (VS2SC2021S/-1)	AB
Q801	2SD468C	APLD Regulated Power Supply (VS2SD468-C/-1)	AD

DIODES

REF. NO.	PART NO.	DESCRIPTION	CODE
D1~3	1S2076	Electrostatic Protector (VHD1S2076//-1)	AB
D4	1S2688B	Variable Capacitance, AFC (VHC1S2688-BIF)	AC
D5	1N34A	Level Shift, Tuning Indicator (VHD1N34A///-1)	AB
D6	1S2076	Level Shift, Tuning Indicator (VHD1S2076//-1)	AB
D7	1S2076	AGC (VHD1S2076//-1)	AB
D8	HZ6B2L	Zener, 6V/400mW (VHEHZ6B2L//-1)	AB
D9	1S2076	FM Local Oscillator Limiter (VHD1S2076//-1)	AB
D10	1S2076	Switching (VHD1S2076//-1)	AB
D11	1S2076	Reverse Current Prevention (VHD1S2076//-1)	AB
D12	1N34A	AM Detector, Tuning Indicator (VHD1N34A///-1)	AB
D13	1N34A	AM Detector (VHD1N34A///-1)	AB
D201	1S1555 or (1S2076)	Reverse Current Prevention (VHD1S1555V/1G, VHD1S2076//-1)	AB AB
D202,205~D207	1S1555 or (1S2076)	Built-in Microphone Switching (VHD1S1555V/1G, VHD1S2076//-1)	AB AB
D208,209	1S1555 or (1S2076)	Reverse Current Prevention (VHD1S1555V/1G, VHD1S2076//-1)	AB AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
D210	1S1555 or (1S2076)	Deck 1 Monitoring Output Switching (VHD1S1555V/1G VHD1S2076//-1)	AB AB
D211	1S1555 or (1S2076)	Deck 1 Monitoring Output Amp. Switching (VHD1S1555V/1G, VHD1S2076//-1)	AB AB
D212	1S1555 or (1S2076)	Reverse Current Prevention (VHD1S1555V/1G, VHD1S2076//-1)	AB AB
D401,402	1S1555 or (1S2076)	ALC Circuit (VHD1S1555V/1G, VHD1S2076//-1)	AB AB
D403,501	1S1555 or (1S2076)	Reverse Current Prevention (VHD1S1555V/1G, VHD1S2076//-1)	AB AB
D502	1S1555 or (1S2076)	APLD Malfunction Prevention (VHD1S1555V/1G, VHD1S2076//-1)	AB AB
D601	1S1555	Reverse Current Prevention (VHD1S1555V/1G)	AB
D602	GL-9PR623	Power Indicator (RH-PX1018AFZZ)	AC
D603~607	GL-105R53	Level/Tuning Indicators (VHPGL105R53-1)	AK
D608	GL-9PR623	Dubbing Indicator (RH-PX1018AFZZ)	AC
D609	GL-9PR623	Recording Indicator (RH-PX1018AFZZ)	AC
D610	GL-9PR623	FM Stereo Broadcast Indicator (RH-PX1018AFZZ)	AC
D611~615	GL-105R5	APLD Indicators (VHPGL105R5/-1)	AH
D616~619	1S1555	Reverse Current Prevention (VHD1S1555V/1G)	AB
D620	RD10JB2	Zener, 10V/400mW (VHERD100JB2-1)	AB
D621	1S1555	Reverse Current Prevention (VHD1S1555V/1G)	AB
D622	1S1555	APLD Indicator Malfunction Prevention(VHD1S1555V/1G)	AB
D623	1S1555	Reverse Current Prevention (VHD1S1555V/1G)	AB
D624	RD9.1JB2	Zener, 9.1V/400mW (VHERD9R1JB2-1)	AB
D701	1S2076	Built-in Microphone Muting (VHD1S2076//-1)	AB
D702~705	10E1	Rectifier (VHD10E1////-1)	AC
D806	1S2076	Reverse Current Prevention (VHD1S2076//-1)	AB
D807	HZ11A1L	Zener, 11V/400mW (VHEHZ11A-1L-1)	AB
D808	10E1	Surge Current Absorber (VHD10E1////-1)	AC
D809	10E1	Reverse Electromotive Force Absorber (VHD10E1////-1)	AC

THYRISTOR

REF. NO.	PART NO.	DESCRIPTION	CODE
SCR601	CR02AM1B	APLD Power Switching (VHSCR02AM1B-1)	AE

FILTERS

REF. NO.	PART NO.	DESCRIPTION	CODE
CF1	RFILF0009AFZZ	FM 1st IF	AD
CF2	RFILF0009AFZZ	FM 2nd IF	AD

TRANSFORMERS

REF. NO.	PART NO.	DESCRIPTION	CODE
T1	RCILI0157AFZZ	FM IF	AC
T2	RCILI0208AFZZ	FM IF	AC
T3	RCILI0264AFZZ	AM IF	AG
T4	RCILI0170AFZZ	AM IF	AC
⚠ T701	RTRNP0657AFZZ	Power	AT

COILS

REF. NO.	PART NO.	DESCRIPTION	CODE
L1,2	RCILR0090AFZZ	FM RF	AA
L3,4	RCILR0118AFZZ	FM Local Oscillator	AA
L5	RCILC0030AFZZ	1.8μH, FM RF Choke	AB
L6	RCILA0495AFZZ	SW_2 Antenna	AD
L7	RCILA0437AFZZ	AM & SW_1 Antenna	AL
L8	RCILB0358AFZZ	SW_2 Local Oscillator	AE
L9	RCILB0357AFZZ	SW_1 Local Oscillator	AD
L10	RCILB0444AFZZ	AM Local Oscillator	AC
L11	RCILF0014AGZZ	47μH, Choke	AC
L201,202	RCILB0527AFZZ	Recording Bias Step-up	AE
L301	RCILB0526AFZZ	Recording Bias Oscillator	AF
L302	VP-CH102K0000	1mH	AB

PACKAGED CIRCUITS

REF. NO.	PART NO.	DESCRIPTION	CODE
M1	RFILF0056AFZZ	Band-pass Filter	AE
M2,3	RMPTA0104AFZZ	Low-pass Filter (38kHz Trap)	AD

CONTROLS

REF. NO.	PART NO.	DESCRIPTION	CODE
R20	RVR-M0130AFZZ	50K ohm (B), FM Muting Level Adjust	AC
R34	RVR-M0127AFZZ	10K ohm (B), VCO (Voltage Controlled Oscillator)Adjust	AC
VR301	RVR-P0076AFZZ	20K ohm (B), Mic Volume	AF
VR302(A,B)	RVR-Z0094AFZZ	50K ohm (W), Tape Fading	AH
VR602(A,B)	RVR-A0155AFZZ	100K ohm (A), Treble Tone	AG
VR603(A,B)	RVR-A0155AFZZ	100K ohm (A), Bass Tone	AG
VR604	RVR-B0228AFZZ	100K ohm (B), Channel Balance	AE
VR605(A,B)	RVR-B0234AFZZ	20K ohm (B), Output Volume	AG
VC1~4, TC1, 2, TC4, 5	RVR-R0070AFZZ	Variable Capacitors, Tuning with Trimmers TC1: FM RF Trimmer TC2: FM Local Oscillator Trimmer TC4: SW_1 Antenna Trimmer TC5: AM Antenna Trimmer	AP
VC5	RVC-M0002AFZZ	Variable Capacitor, Fine Tuning Control	AH
TC3	RTO-H1007AFZZ	SW_2 Antenna Trimmer	AC
TC6	RTO-H1007AFZZ	SW_2 Local Oscillator Trimmer	AC
TC7, 8	RTO-H2050AFZZ	TC7: SW_1 Local Oscillator Trimmer TC8: AM Local Oscillator Trimmer	AD AD

ELECTROLYTIC CAPACITORS

REF. NO.	PART NO.	DESCRIPTION	CODE
C17	RC-EZS476AF1A	47MFD, 10V, ±20%	AB
C32	VCEAAU1HW105A	1MFD, 50V, +75–10%	AB
C37	RC-EZS476AF1C	47MFD, 16V, ±20%	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C42	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
C43	VCEAAU1EW475A	4.7MFD, 25V, +75–10%	AB
C45	VCEAAU1EW335A	3.3MFD, 25V, +75–10%	AB
C47	RC-EZS108AF1C	1000MFD, 16V, ±20%	AD
C51	VCEALU1HW224M	.22MFD, 50V, ±20%	AB
C52	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
C53	VCEAAU1EW335A	3.3MFD, 25V, +75–10%	AB
C59,60	VCEALU1HW334M	.33MFD, 50V, ±20%	AB
C62,89	RC-EZS107AF1A	100MFD, 10V, ±20%	AB
C91	VCEAAU1EW475A	4.7MFD, 25V, +75–10%	AB
C95	RC-EZS107AF1A	100MFD, 10V, ±20%	AB
C97	VCEALU1HW334M	33MFD, 50V, ±20%	AB
C201,202	VCEALA1HW334M	.33MFD, 50V, ±20%	AB
C203	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C204	RC-EZA107AF1C	100MFD, 16V, ±20%	AB
C207,208	VCAAAU1AB475M	4.7MFD, 10V, ±20%	AC
C211,212	RC-EZA107AF1A	100MFD, 10V, ±20%	AB
C217,218	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C223	RC-EZS105AF1H	1MFD, 50V, ±20%	AB
C251,252	VCAAAU1AB475M	4.7MFD, 10V, ±20%	AC
C255,256	RC-EZA107AF1A	100MFD, 10V, ±20%	AB
C259,260	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C263	RC-EZA107AF1C	100MFD, 16V, ±20%	AB
C264	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C265	RC-EZA475AF1E	4.7MFD, 25V, ±20%	AB
C266	RC-EZS475AF1E	4.7MFD, 25V, ±20%	AB
C271,272	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C273	RC-EZA476AF1C	47MFD, 16V, ±20%	AB
C301	RC-EZS475AF1E	4.7MFD, 25V, ±20%	AB
C302	RC-EZA475AF1E	4.7MFD, 25V, ±20%	AB
C305,306	RC-EZA476AF1A	47MFD, 10V, ±20%	AB
C311,312	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C313	RC-EZA107AF1C	100MFD, 16V, ±20%	AB
C315	VCEAAU1HW105A	1MFD, 50V, +75–10%	AB
C317	VCEAAU1CW106Y	10MFD, 16V, +50–10%	AB
C318	RC-EZS476AF1C	47MFD, 16V, ±20%	AB
C351	RC-EZA476AF1C	47MFD, 16V, ±20%	AB
C403,404, C407,408	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C411	RC-EZS106AF1C	10MFD, 16V, ±20%	AB
C412	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C413,414	RC-EZA105AF1H	1MFD, 50V, ±20%	AB
C415	RC-EZS476AF1C	47MFD, 16V, ±20%	AB
C416	RC-EZA107AF1A	100MFD, 10V, ±20%	AB
C417~420	RC-EZA475AF1E	4.7MFD, 25V, ±20%	AB
C427,428	RC-EZA106AF1C	10MFD, 16V, ±20%	AB
C431	RC-EZS227AF1C	220MFD, 16V, ±20%	AC
C435	RC-EZS477AF1C	470MFD, 16V, ±20%	AC
C503	RC-EZA336AF1C	33MFD, 16V, ±20%	AB
C504	RC-EZS106AF1C	10MFD, 16V, ±20%	AB
C507	VCEALA1CW106M	10MFD, 16V, ±20%	AB
C508	RC-EZA107AF1E	100MFD, 25V, ±20%	AC
C509	RC-EZA476AF1E	47MFD, 25V, ±20%	AB
C511	RC-EZS477AF1C	470MFD, 16V, ±20%	AC
C513	RC-EZA476AF1A	47MFD, 10V, ±20%	AB
C601	VCEAAU1CW106Y	10MFD, 16V, +50–10%	AB
C603	VCEAAU1EW475A	4.7MFD, 25V, +75–10%	AB
C604	RC-EZS476AF1E	47MFD, 25V, ±20%	AB
C619,620	VCEALU1HW104M	.1MFD, 50V, ±20%	AB
C651	VCEAAU1CW106Y	10MFD, 16V, +50–10%	AB
C652	VCEALU1HW104M	.1MFD, 50V, ±20%	AB
C653	VCEAAU1EW475A	4.7MFD, 25V, +75–10%	AB
C654	VCEALU1HW474M	.47MFD, 50V, ±20%	AB
C656	VCEAAU1HW105A	1MFD, 50V, +75–10%	AB
C657	VCEALU1HW104M	.1MFD, 50V, ±20%	AB
C660	VCEAAU1HW105A	1MFD, 50V, +75–10%	AB
C701,702	VCEAAU1AW107Y	100MFD, 10V, +50–10%	AB
C703,704	RC-EZS107AF1C	100MFD, 16V, ±20%	AB
C705	VCEAAU1AW107Y	100MFD, 10V, +50–10%	AB
C706	RC-EZS338AF1E	3300MFD, 25V, ±20%	AH
C709,710	RC-EZS108AF1C	1000MFD, 16V, ±20%	AD
C721	RC-EZS107AF1A	100MFD, 10V, ±20%	AB
C801	VCEAAU1CW106Y	10MFD, 16V, +50–10%	AB
C803,804	RC-EZS476AF1E	47MFD, 25V, ±20%	AB
C805	RC-EZS476AF1C	47MFD, 16V, ±20%	AB

CAPACITORS

REF. NO.	PART NO.	DESCRIPTION	CODE
C2	VCKYPU1HB222M	.0022MFD, 50V, ±20%, Ceramic	AA
C3	VCKYPU1HB102K	.001MFD, 50V, ±10%, Ceramic	AA
C4	VCCSPU1HL3R0C	3PF, 50V, ±0.25PF, Ceramic	AA
C5	VCCSPU1HL220J	22PF, 50V, ±5%, Ceramic	AA
C6	VCKYPU1HB222M	.0022MFD, 50V, ±20%, Ceramic	AA
C7	VCKYPU1HB472M	.0047MFD, 50V, ±20%, Ceramic	AA
C8	VCCSAT1HL4R7C	4.7PF, 50V, ±0.25PF, Ceramic	AA
C9	VCCCPU1HH1R5C	1.5PF (CH), 50V, ±0.25PF, Ceramic	AA
C10	VCCSPU1HL101J	100PF, 50V, ±5%, Ceramic	AA
C11	VCCSPU1HL100F	10PF, 50V, ±1PF, Ceramic	AA
C12	VCKYPU1HB472M	.0047MFD, 50V, ±20%, Ceramic	AA
C14	VCTYAT1EX103N	.01MFD, 25V, ±30%, Semiconductor	AA
C15	VCCSPU1HL8R0D	8PF, 50V, ±0.5PF, Ceramic	AA
C16	VCKYPU1HB222M	.0022MFD, 50V, ±20%, Ceramic	AA
C18	VCCCPU1HH150J	15PF (CH), 50V, ±5%, Ceramic	AA
C19	VCCCPU1HH220J	22PF (CH), 50V, ±5%, Ceramic	AA
C20	VCCCPU1HH5R0C	5PF(CH), 50V, ±0.25PF, Ceramic	AA
C21	VCCCPU1HH1R0C	1PF(CH), 50V, ±0.25PF, Ceramic	AA
C22	VCTYAT1EX103N	.01MFD, 25V, ±30%, Semiconductor	AA
C23	VCKYPU1HB223M	.022MFD, 50V, ±20%, Ceramic	AB
C24	VCTYAT1CY223N	.022MFD, 16V, ±30%, Semiconductor	AA
C25	VCCSPU1HL8R0D	8PF, 50V, ±0.5PF, Ceramic	AA
C26,27	VCKZPU1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C28,29	VCKYPU1HB223M	.022MFD, 50V, ±20%, Ceramic	AB
C30	VCKZPU1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C31	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C33	VCCCPU1HH100F	10PF (CH), 50V, ±1PF, Ceramic	AA
C34	VCKZPU1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C35	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar	AB
C36	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C38	VCKYPU1HB223M	.022MFD, 50V, ±20%, Ceramic	AB
C40	VCCSPU1HL471J	470PF, 50V, ±5%, Ceramic	AB
C41	VCTYAT1EX103N	.01MFD, 25V, ±30%, Semiconductor	AA
C44	VCQYKU1HM103M	.01MFD, 50V, ±20%, Mylar	AB
C46,48	VCTYAT1CY223N	.022MFD, 16V, ±30%, Semiconductor	AA
C49	VCQYKU1HM223M	.022MFD, 50V, ±20%, Mylar	AB
C50	VCQYKU1HM473M	.047MFD, 50V, ±20%, Mylar	AB
C54	VCQSMU1HS471J	470PF, 50V, ±5%, Polystyrene Film	AB
C55,56	VCKYAT1HB681K	680PF, 50V, ±10%, Ceramic	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C57,58	VCQYKU1HM392M	.0039MFD, 50V, ±20%, Mylar	
C61,64	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C65	VCCCPU1HH7R0C	7PF(CH), 50V,±0.25PF, Ceramic	AA
C66	VCTYAT1HV472K	.0047MFD, 50V, ±10%, Semiconductor	AA
C67	VCTYAT1HV152K	.0015MFD, 50V, ±10%, Semiconductor	AA
C68	VCCSPU1HL331J	330PF, 50V,±5%, Ceramic	AA
C69	VCCCAT1HH3R9C	3.9PF (CH), 50V,±0.25PF, Ceramic	AA
C70	VCCCPU1HH2R0C	2PF (CH), 50V,±0.25PF, Ceramic	AA
C71	VCCSAT1HL330J	33PF, 50V,±5%, Ceramic	AA
C72	VCCCPU1HH100F	10PF (CH), 50V,±1PF, Ceramic	
C73	VCTYAT1CY223N	.022MFD, 16V,±30%, Semiconductor	AA
C74	VCQYKU1HM102K	.001MFD, 50V, ±10%, Mylar	AA
C75	VCQYKU1HM332M	.0033MFD, 50V,±20%, Mylar	AA
C76	VCQYKU1HM223M	.022MFD, 50V,±20%, Mylar	AB
C77	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C78	VCTYAT1CY223N	.022MFD, 16V,±30%, Semiconductor	AA
C79	VCCSAT1HL121J	120PF, 50V,±5%, Ceramic	AA
C80	VCKZPU1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C81~83	VCTYAT1CY223N	.022MFD, 16V,±30%, Semiconductor	AA
C84	VCTYAT1EX103N	.01MFD, 25V,±30%, Semiconductor	AA
C85	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C86	VCQYKU1HM333M	.033MFD, 50V,±20%, Mylar	AB
C87	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C88,90	VCTYAT1CY223N	.022MFD, 16V,±30%, Semiconductor	AA
C92	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C93	VCQYKU1HM223M	.022MFD, 50V,±20%, Mylar	AB
C94	VCKZPU1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C96	VCQYKU1HM103M	.01MFD, 50V,±20%, Mylar	AB
C99	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C205,206	VCKYAT1HB391K	390PF, 50V, ±10%, Ceramic	AA
C209,210	VCKYAT1HB221K	220PF, 50V, ±10%, Ceramic	AA
C213,214	VCTYPU1EX222K	.0022MFD, 25V, ±10%, Semiconductor	
C215,216	VCQYKU1HM393K	.039MFD, 50V, ±10%, Mylar	AB
C219,220	VCTYPU1EX333K	.033MFD, 25V, ±10%, Semiconductor	AB
C221,222	VCKYAT1HB221K	220PF, 50V, ±10%, Ceramic	AA
C253,254	VCKYAT1HB391K	390PF, 50V, ±10%, Ceramic	AA
C257,258	VCQYKU1HM393K	.039MFD, 50V, ±10%, Mylar	AB
C261,262	VCTYPU1EX333K	.033MFD, 25V, ±10%, Semiconductor	AB
C269,270	VCCSPU1HL271K	270PF, 50V, ±10%, Ceramic	AA
C283,284	VCCSPU1HL221J	220PF, 50V, ±5%, Ceramic	AA
C303,304	VCKYAT1HB221K	220PF, 50V, ±10%, Ceramic	AA
C307,308	VCTYAT1EX822K	.0082MFD, 25V, ±10%, Semiconductor	AA
C309,310	VCQYKU1HM273K	.027MFD, 50V, ±10%, Mylar	AB
C314	VCTYAT1EX103N	.01MFD, 25V,±30%, Semiconductor	AA
C316	VCKYAT1HB221K	220PF, 50V, ±10%, Ceramic	AA
C319	VCTYPU1EX223K	.022MFD, 25V, ±10%, Semiconductor	AA
C352	VCKZPU1HF103Z	.01MFD, 50V, +80–20%, Ceramic	AA
C353	VCQYKA1HM223K	.022MFD, 50V, ±10%, Mylar	AB
C354	VCKZPU1HF102Z	.001MFD, 50V, +80–20%, Ceramic	AA
C355	VCQPKV2AA223J	.022MFD, 100V,±5%, Polypropylene	AB
C356	VCQPKQ2AA102J	.001MFD, 100V,±5%, Polypropylene	AB
C357	VCTYAT1EX103N	.01MFD, 25V,±30%, Semiconductor	AA
C405,406	VCKYAT1HB221K	220PF, 50V, ±10%, Ceramic	AA
C409,410	VCCSAT1HL101J	100PF, 50V,±5%, Ceramic	AA
C421,422	VCTYAT1CY223N	.022MFD, 16V,±30%, Semiconductor	AA
C429,430	VCTYAT1HX472M	.0047MFD, 50V,±20%, Semiconductor	AA
C433,434	VCTYAT1CY223N	.022MFD, 16V,±30%, Semiconductor	AA
C437,438	VCKYAT1HB102K	.001MFD, 50V,±10%, Ceramic	AA
C439,440	VCKYAT1HB681K	680PF, 50V, ±10%, Ceramic	AA
C441,442	VCTYPU1EX102K	.001MFD, 25V, ±10%, Semiconductor	AA
C443,444	VCTYPU1EX473M	.047MFD, 25V,±20%, Semiconductor	AB
C501	VCCSPU1HL561J	560PF, 50V, ±5%, Ceramic	AA
C502	VCKYAT1HB331K	330PF, 50V, ±10%, Ceramic	AA
C505	VCCSPU1HL180J	18PF, 50V, ±5%, Ceramic	AA
C506	VCTYPU1EX333M	.033MFD, 25V,±20%, Semiconductor	AB
C510,512	VCTYAT1EX103N	.01MFD, 50V, ±30%, Semiconductor	AA
C514	VCTYPU1EX223K	.022MFD, 25V, ±10%, Semiconductor	AA
C515	VCKYPU1HB221K	220PF, 50V, ±10%, Ceramic	AA
C602	VCTYAT1HX472M	.0047MFD, 50V,±20%, Semiconductor	AA
C611,612	VCTYAT1HV222K	.0022MFD, 50V, ±10%, Semiconductor	AA
C613,614	VCTYPU1EX153K	.015MFD, 25V, ±10%, Semiconductor	AA
C615,616	VCTYPU1EX223K	.022MFD, 25V, ±10%, Semiconductor	AA
C617,618	VCTYPU1EX683K	.068MFD, 25V, ±10%, Semiconductor	AB
C621,622	VCTYPU1EX823K	.082MFD, 25V, ±10%, Semiconductor	AA
C623,624	VCTYAT1HX222M	.0022MFD, 50V,±20%, Semiconductor	AA
C655	VCQYKU1HM103J	.01MFD, 50V,±5%, Mylar	AB
C659	VCTYAT1EX103N	.01MFD, 25V,±30%, Semiconductor	AA
C661	VCQYKU1HM102J	.001MFD, 50V,±5%, Mylar	AB
C662	VCTYAT1EX103N	.01MFD, 25V,±30%, Semiconductor	AA
C665,666	VCKZPU1HF223Z	.022MFD, 50V, +80–20%, Ceramic	AA
C707,708	VCKZPU1HF104Z	.1MFD, 50V, +80–20%, Ceramic	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
C713,714	VCTYAT1HV222K	.022MFD,50V, ±10%,Ceramic	AA
C716,717	VCKZPU1HF223Z	.022MFD, 50V, +80−20%, Ceramic	AA
C718,719	VCKYAT1HD102M	.001MFD,50V, ±20%,Ceramic	AA
C720	VCKZPU1HF103Z	.01MFD, 50V, +80−20%, Ceramic	AA
C731,732	VCKZPU1HF223Z	.022MFD, 50V, +80 −20%, Ceramic	AA
C802,806	VCTYAT1EX103N	.01MFD, 25V, ±30%, Semi-conductor	AA

RESISTORS

(Unless otherwise specified resistors are 1/4W, ±5%, Carbon Type.)

REF. NO.	PART NO.	DESCRIPTION	CODE
R1	VRD-ST2EE102J	1K ohm	AA
R3	VRD-ST2EE471J	470 ohm	AA
R5	VRD-ST2EE152J	1.5K ohm	AA
R6	VRD-SU2EE473J	47K ohm	AA
R7	VRD-SU2EE151J	150 ohm	AA
R8	VRD-ST2EE104J	100K ohm	AA
R12	VRD-SU2EE471J	470 ohm	AA
R15	VRD-ST2EE102J	1K ohm	AA
R17	VRD-ST2EE221J	220 ohm	AA
R18	VRD-SU2EE102J	1K ohm	AA
R19	VRD-ST2EE103J	10K ohm	AA
R21	VRD-ST2EE221J	220 ohm	AA
R22	VRD-ST2EE101J	100 ohm	AA
R25	VRD-ST2EE472J	4.7K ohm	AA
R26	VRD-ST2EE471J	470 ohm	AA
R28	VRD-ST2EE331J	330 ohm	AA
R32	VRD-ST2EE471J	470 ohm	AA
R33	VRD-ST2EE183J	18K ohm	AA
R43	VRD-ST2EE681J	680 ohm	AA
R51	VRD-SU2EE101J	100 ohm	AA
R52	VRD-SU2EE152J	1.5K ohm	AA
R53	VRD-SU2EE122J	1.2K ohm	AA
R54,56, R57	VRD-SU2EE100J	10 ohm	AA
R58	VRD-SU2EE121J	120 ohm	AA
R59	VRD-ST2EE100J	10 ohm	AA
R60	VRD-SU2EE471J	470 ohm	AA
R61	VRD-SU2EE274J	270K ohm	AA
R62	VRD-ST2EE102J	1K ohm	AA
R64	VRD-ST2EE121J	120 ohm	AA
R67	VRD-ST2EE681J	680 ohm	AA
R70	VRD-ST2EE152J	1.5K ohm	AA
R71	VRD-ST2EE152J	1.5K ohm	AA
R76	VRD-ST2EE471J	470 ohm	AA
R81	VRD-ST2EE152J	1.5K ohm	AA
R83	VRD-ST2EE221J	220 ohm	AA
R84	VRD-ST2EE105J	1M ohm	AA
R201,202	VRD-ST2EE101J	100 ohm	AA
R205	VRD-ST2EE103J	10K ohm	AA
R206	VRD-SU2EE103J	10K ohm	AA
R207~210	VRD-ST2EE102J	1K ohm	AA
R211,212	VRD-ST2EE273J	27K ohm	AA
R213,214	VRD-ST2EE470J	47 ohm	AA
R215	VRD-SU2EE103J	10K ohm	AA
R216	VRD-ST2EE103J	10K ohm	AA
R217~219	VRD-ST2EE154J	150K ohm	AA
R220	VRD-SU2EE154J	150K ohm	AA
R221,222	VRD-SU2EE392J	3.9K ohm	AA
R223	VRD-SU2EE332J	3.3K ohm	AA
R224	VRD-ST2EE332J	3.3K ohm	AA
R225,226	VRD-ST2EE272J	2.7K ohm	AA
R227,228	VRD-ST2EE472J	4.7K ohm	AA
R229,230	VRD-ST2EE104J	100K ohm	AA
R231,232	VRD-ST2EE473J	47K ohm	AA
R233	VRD-ST2EE182J	1.8K ohm	AA
R234	VRD-ST2EE681J	680 ohm	AA
R235	VRD-ST2EE334J	330K ohm	AA
R236	VRD-ST2EE561J	560 ohm	AA
R251,252	VRD-ST2EE330J	33 ohm	AA
R253,254	VRD-ST2EE273J	27K ohm	AA
R255,256	VRD-ST2EE392J	3.9K ohm	AA
R257,258	VRD-ST2EE154J	150K ohm	AA
R259,260	VRD-ST2EE104J	100K ohm	AA
R261,262	VRD-ST2EE332J	3.3K ohm	AA
R263,264	VRD-ST2EE272J	2.7K ohm	AA
R265,266	VRD-ST2EE332J	3.3K ohm	AA
R267,268	VRD-ST2EE472J	4.7K ohm	AA
R269,270	VRD-ST2EE103J	10K ohm	AA
R271,272	VRD-ST2EE473J	47K ohm	AA
R273	VRD-SU2EE103J	10K ohm	AA
R274	VRD-ST2EE103J	10K ohm	AA
R275,276	VRD-ST2EE562J	5.6K ohm	AA
R277	VRD-ST2EE103J	10K ohm	AA
R278	VRD-SU2EE103J	10K ohm	AA
R279,280	VRD-SU2EE564J	560K ohm	AA
R281,282	VRD-SU2EE222J	2.2K ohm	AA
R283,284	VRD-SU2EE103J	10K ohm	AA
R285	VRD-ST2EE560J	56 ohm	AA
R286	VRD-SU2EE560J	56 ohm	AA
R287,288	VRD-SU2EE471J	470 ohm	AA
R289,290	VRD-SU2EE331J	330 ohm	AA
R291	VRD-ST2EE472J	4.7K ohm	AA
R292	VRD-ST2EE221J	220 ohm	AA
R293	VRD-ST2EE332J	3.3K ohm	AA
R294	VRD-ST2EE561J	560 ohm	AA
R301,302	VRD-ST2EE473J	47K ohm	AA
R303	VRD-SU2EE562J	5.6K ohm	AA
R304	VRD-ST2EE562J	5.6K ohm	AA
R305	VRD-SU2EE151J	150 ohm	AA
R306	VRD-ST2EE151J	150 ohm	AA
R307	VRD-SU2EE273J	27K ohm	AA
R308	VRD-ST2EE273J	27K ohm	AA
R309,310	VRD-ST2EE103J	10K ohm	AA
R311,312	VRD-ST2EE823J	82K ohm	AA
R313,314	VRD-ST2EE153J	15K ohm	AA
R315,316	VRD-ST2EE823J	82K ohm	AA
R317	VRD-ST2EE561J	560 ohm	AA
R318	VRD-ST2EE102J	1K ohm	AA
R319	VRD-ST2EE824J	820K ohm	AA
R320	VRD-ST2EE220J	22 ohm	AA
R321	VRD-ST2EE472J	4.7K ohm	AA
R322	VRD-ST2EE561J	560 ohm	AA
R323,324	VRD-ST2EE473J	47K ohm	AA
R325	VRD-ST2EE561J	560 ohm	AA
R351,352	VRD-ST2EE682J	6.8K ohm	AA
R353	VRD-ST2EE153J	15K ohm	AA
R354	VRD-ST2EE1R0J	1 ohm	AA
R355,356	VRD-ST2EE100J	10 ohm	AA
R401,402	VRD-ST2EE333J	33K ohm	AA
R403,404	VRD-ST2EE472J	4.7K ohm	AA
R405,406	VRD-ST2EE154J	150K ohm	AA
R407,408	VRD-ST2EE391J	390 ohm	AA
R409,410	VRD-ST2EE273J	27K ohm	AA
R411,412	VRD-ST2EE272J	2.7K ohm	AA
R413,414	VRD-ST2EE102J	1K ohm	AA
R415,416	VRD-ST2EE183J	18K ohm	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
R417,418	VRD-ST2EE123J	12K ohm	AA
R419	VRD-ST2EE274J	270K ohm	AA
R420	VRD-ST2EE473J	47K ohm	AA
R421	VRD-ST2EE822J	8.2K ohm	AA
R423,424	VRD-ST2EE473J	47K ohm	AA
R427,428	VRD-ST2EE103J	10K ohm	AA
R429,430	VRD-ST2EE472J	4.7K ohm	AA
R431,432	VRD-ST2EE473J	47K ohm	AA
R433,434	VRD-ST2EE103J	10K ohm	AA
R435,436	VRD-ST2EE472J	4.7K ohm	AA
R437,438	VRD-ST2EE122J	1.2K ohm	AA
R441	VRD-SU2EE224J	220K ohm	AA
R442	VRD-SU2EE823J	82K ohm	AA
R443	VRD-SU2EE104J	100K ohm	AA
R444	VRD-ST2EE224J	220K ohm	AA
R445,446	VRD-ST2EE222J	2.2K ohm	AA
R447	VRD-ST2EE273J	27K ohm	AA
R448	VRD-ST2EE103J	10K ohm	AA
R449,450	VRD-ST2EE473J	47K ohm	AA
R451,452	VRD-ST2EE272J	2.7K ohm	AA
R453,454	VRD-ST2EE153J	15K ohm	AA
R455,456	VRD-ST2EE333J	33K ohm	AA
R457,458	VRD-ST2EE183J	18K ohm	AA
R459	VRD-ST2EE121J	120 ohm	AA
R460	VRD-ST2EE560J	56 ohm	AA
R501	VRD-ST2EE101J	100 ohm	AA
R502	VRD-SU2EE331J	330 ohm	AA
R503	VRD-SU2EE273J	27K ohm	AA
R504	VRD-SU2EE822J	8.2K ohm	AA
R505	VRD-ST2EE562J	5.6K ohm	AA
R506	VRD-ST2EE102J	1K ohm	AA
R507	VRD-ST2EE103J	10K ohm	AA
R508	VRD-ST2EE472J	4.7K ohm	AA
R509	VRD-ST2EE331J	330 ohm	AA
R510	VRD-ST2EE682J	6.8K ohm	AA
R511	VRD-ST2EE120J	12 ohm	AA
R512	VRD-ST2EE102J	1K ohm	AA
R513	VRD-ST2EE103J	10K ohm	AA
R514	VRD-ST2EE100J	10 ohm	AA
R601	VRD-ST2EE472J	4.7K ohm	AA
R602	VRD-ST2EE103J	10K ohm	AA
R603	VRD-ST2EE123J	12K ohm	AA
R604	VRD-ST2EE822J	8.2K ohm	AA
R605	VRD-ST2EE682J	6.8K ohm	AA
R606	VRD-ST2EE224J	220K ohm	AA
R608	VRD-ST2EE220J	22 ohm	AA
R611	VRD-ST2EE471J	470 ohm	AA
R615	VRD-ST2EE271J	270 ohm	AA
R616	VRD-ST2EE121J	120 ohm	AA
R618,620	VRD-ST2EE152J	1.5K ohm	AA
R621,622	VRD-ST2EE223J	22K ohm	AA
R623~626	VRD-ST2EE222J	2.2K ohm	AA
R627,628	VRD-ST2EE272J	2.7K ohm	AA
R629	VRD-ST2EE102J	1K ohm	AA
R630	VRD-ST2EE222J	2.2K ohm	AA
R631,632	VRD-ST2EE562J	5.6K ohm	AA
R633	VRD-ST2EE121J	120 ohm	AA
R634	VRD-ST2EE153J	15K ohm	AA
R651,652	VRD-ST2EE222J	2.2K ohm	AA
R653	VRD-ST2EE223J	22K ohm	AA
R654	VRD-ST2EE102J	1K ohm	AA
R655	VRD-ST2EE102J	1K ohm	AA
R656	VRD-ST2EE332J	3.3K ohm	AA
R657	VRD-ST2EE103J	10K ohm	AA
R658	VRD-ST2EE104J	100K ohm	AA
R659	VRD-ST2EE473J	47K ohm	AA
R670	VRD-ST2EE222J	2.2K ohm	AA
R671	VRD-ST2EE681J	680 ohm	AA
R672	VRD-ST2EE101J	100 ohm	AA
R673	VRD-ST2EE103J	10K ohm	AA
R674	VRD-ST2EE272J	2.7K ohm	AA
R675	VRD-ST2EE102J	1K ohm	AA
R676	VRD-ST2EE561J	560 ohm	AA
R677	VRD-ST2EE562J	5.6K ohm	AA
R678,679	VRD-ST2EE223J	22K ohm	AA
R701,702	VRD-ST2EE333J	33K ohm	AA
R704,705	VRD-ST2EE221J	220 ohm	AA
R706,707	VRD-ST2EE2R2J	2.2 ohm	AA
R708	VRD-SU2EE271J	270 ohm	AA
R709	VRD-SU2EE151J	150 ohm	AA
R710	VRD-ST2EE151J	150 ohm	AA
△ R711	RR-HZ1001AFZZ	4.7M ohm, 1/2W, ±10%, Solid	AB
R801	VRD-ST2EE473J	47K ohm	AA
R804	VRD-ST2EE223J	22K ohm	AA
R805	VRD-ST2EE102J	1K ohm	AA
R901	VRD-ST2HA103J	10K ohm, 1/2W, ±5%, Carbon	

MISCELLANEOUS

1	JKNBR0140AFSB	Key, Cassette Ejection, Deck 1	AE
2	JKNBR0141AFSB	Key, APLD Reverse, Deck 1	AE
3	JKNBR0142AFSB	Key, Rewind/Review, Deck 1	AE
4	JKNBR0143AFSB	Key, Stop, Deck 1	AE
5	JKNBR0144AFSB	Key, Playback, Deck 1	AE
6	JKNBR0145AFSB	Key, Fast Forward Wind/ Skip (cue), Deck 1	AE
7	JKNBR0146AFSB	Key, APLD Forward, Deck 1	AE
8	JKNBR0147AFSB	Key, Pause, Deck 1	AE
9	JKNBR0148AFSB	Key, Editing, Deck 2	AE
10	JKNBR0149AFSB	Key, Pause, Deck 2	AE
11	JKNBR0150AFSB	Key, Rewind/Review, Deck 2	AE
12	JKNBR0151AFSB	Key, Record, Deck 2	AE
13	JKNBR0152AFSB	Key, Stop, Deck 2	AE
14	JKNBR0153AFSB	Key, Playback, Deck 2	AE
15	JKNBR0154AFSB	Key, Fast Forward Wind/ Skip (cue), Deck 2	AE
16	JKNBR0155AFSB	Key, Cassette Ejection, Deck 2	AE
17	LANGF0494AFFW	Bracket, Function Key Shaft Retaining	AB
18	LANGF0495AFFW	Bracket, Motor Mounting	AG
19	LANGF0496AFFW	Bracket, Wiring Guide	AD
21	LBSHS0001AG00	Cushion, Motor, Rubber	AA
22	LCHSM0317AFZZ	Mechanism Chassis, Turntable Retaining	
23	LCHSM0357AFZZ	Mechanism Main Chassis	
24	LCHSS0144AFZZ	Mechanism Sub-chassis, Deck 2	
25	LCHSS0145AFZZ	Mechanism Sub-chassis, Deck 1	
26	LHLDW3056AFZZ	Wire Holder, 31mm	AA
27	LHLDW3061AFZZ	Wire Holder, 31mm	AA
28	LSTWC2001AFZZ	Stop Ring, 2mm Dia.	AA
29	LSTWC3002AFZZ	Stop Ring, 3mm Dia.	AA
30	LX-BZ0214AFZZ	Screw, Capstan's Thrust Adjust	AB
31	LX-BZ0219AFFD	Screw, Motor Retaining	AA
32	LX-WZ3054AFFD	Lock Washer, External Type, 2.6mm Dia.	AA

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
33	LX-WZ5037AGZZ	Washer, Nylon, 2.6mm Dia. x 4.7mm Dia. x 0.25mm	
34	LX-WZ5048AGZZ	Washer, Nylon, 1.7mm Dia. x 4mm Dia. x 0.25mm	
35	LX-WZ9053AFZZ	Washer, Oil Cut-off	AA
36	LX-WZ9063AFZZ	Washer, Nylon, 1.2mm Dia. x 4mm Dia. x 0.5mm	
37	LX-WZ9064AFZZ	Washer, Nylon, 1.5mm Dia. x 3.8mm Dia. x 0.5mm	
38	LX-WZ9065AFZZ	Washer, Nylon, 2mm Dia. x 3.8mm Dia. x 0.5mm	
40	MLEVF0917AFFW	Lever, Playback Key Interlocking	AD
41	MLEVF0918AFFW	Lever, Fast Forward Wind	AC
42	MLEVF0919AFFW	Lever, Rewind	AC
43	MLEVF0920AFZZ	Lever, Record Key Interlocking	AE
44	MLEVF0921AFFW	Lever, Deck 2 Ejection Key Interlocking	AC
45	MLEVF0922AFFW	Lever, Deck 1 Ejection Key Interlocking	AC
46	MLEVF0923AFZZ	Lever, Deck 2 Pause Key Interlocking	AD
47	MLEVF0924AFZZ	Lever, Deck 1 Pause Key Interlocking	AE
48	MLEVF0925AFFW	Lever, Connecting	AC
49	MLEVF0926AFFW	Lever, Deck 2 Pause	AC
50	MLEVF0927AFFD	Lever, Pause Key Interlocking Lever Lock	AB
51	MLEVF0928AFZZ	Lever, Deck 1 Function Key Lock	AF
52	MLEVF0929AFZZ	Lever, Deck 2 Function Key Lock	AF
53	MLEVF0930AFZZ	Lever, Deck 2 Auto Stop	AC
54	MLEVF0931AFFW	Lever, Deck 1 Auto Stop	AC
55	MLEVF1236AFZZ	Lever, Fixing, Decks Connecting	AD
56	MLEVF0933AFFW	Lever, Deck 2 to 1 Sequential Playback	AE
57	MLEVP0133AFZZ	Lever, Deck 2 Sub-chassis Return	AC
58	MLEVP0134AFZZ	Lever, Deck 1 Sub-chassis Return	AC
59	MLEVP0135AFZZ	Lever, Cassette Compartment Interlocking	AF
60	MLEVP0136AFZZ	Lever, Erase Prevention	AB
61	MLEVP0137AFZZ	Lever, Cassette Compartment Lock	AC
62	MLEVP0138AFZZ	Lever, Pause Key Interlocking	AC
63	MLEVP0139AFZZ	Lever, Pause Key Interlocking	AC
64	MLEVP0140AFZZ	Lever, Record Prevention	AC
65	MLEVP0141AFZZ	Lever, Record & APLD Key Lock	AD
66	MLEVP0142AFZZ	Lever, Pause Release	AB
67	MLEVP0143AFZZ	Lever, Fast Forward Wind & Rewind Roller Shift	AC
68	MLEVP0144AFZZ	Lever, APLD Reverse & Review	AC
69	MLEVP0145AFZZ	Lever, APLD Forward & Skip (cue)	AC
70	MLEVP0146AFZZ	Guide, Deck 1 Tape	AC
71	MLEVP0147AFZZ	Lever, Deck 1 to 2 Sequential Playback	AB
73	MLEVP0149AFZZ	Lever, Auto Stop Lever Control	AB
74	MLEVP0150AFZZ	Lever, Brake	AE
75	MLEVP0151AFZZ	Lever, Auto Stop Control	AB
76	MLEVP0152AFZZ	Cam Follower, Auto Stop	AE
77	MLEVP0153AFZZ	Guide, Auto Stop Cam Follower	AA
78	MLEVP0154AFZZ	Guide, Auto Stop Cam Follower	AC
81	MSPRC0031AGMN	Spring, Head Azimuth	AA
82	MSPRC0183AFFJ	Spring, Auto Stop Cam Follower Guide	AB
84	MSPRD0188AFFJ	Spring, Fast Forward Wind & Rewind Roller	AA
86	MSPRD0213AFFJ	Spring, Pinch Roller	AA
87	MSPRD0214AFFJ	Spring, Fast Forward Wind & Rewind Lever	AA
88	MSPRD0215AFFJ	Spring, Cassette Compartment Lock Lever	AA
89	MSPRD0216AFFJ	Spring, Fast Forward Wind & Rewind Roller Shift Lever	AA
90	MSPRD0217AFFJ	Spring,Pause Key Interlocking Lever Lock Lever	AA
91	MSPRD0218AFFJ	Spring, Cassette Compartment Interlocking Lever	AA
92	MSPRD0219AFFJ	Spring, Record Key Interlocking Lever	AA
93	MSPRD0220AFFJ	Spring, Take-up Idler	AC
94	MSPRD0221AFFJ	Spring, Auto Stop Control Lever	AC
95	MSPRD0222AFFJ	Spring, Brake Lever	AB
97	MSPRD0224AFFJ	Spring, Deck 2 to 1 Sequential Playback Lever	AB
98	MSPRD0225AFFJ	Spring, Deck 1 to 2 Sequential Playback Lever	AB
100	MSPRD0227AFFJ	Spring, Auto Stop Control Lever	AB
102	MSPRP0211AFFJ	Plate Spring, Cassette Retaining	AD
103	MSPRP0212AFFJ	Plate Spring, Function Key Return	AD
105	MSPRT0595AFFJ	Spring, Playback Key Interlocking Lever	AA
106	MSPRT0596AFFJ	Spring, Sub-chassis Pressure	AB
107	MSPRT0597AFFJ	Spring, Function Key Lock Lever	AA
108	MSPRT0598AFFJ	Spring, Record & APLD Key Lock Lever	AA
109	MSPRT0599AFFJ	Spring, Erase Prevention Lever	AA
110	MSPRT0600AFFJ	Spring, Pause Key Interlocking Lever	AA
111	MSPRT0601AFFJ	Spring, Deck 1 Pause Key Interlocking Lever	AA
112	MSPRT0602AFFJ	Spring, Deck 2 Ejection Key Interlocking Lever	AA
113	MSPRT0603AFFJ	Spring, Deck 1 Sub-chassis Return Lever	AA
114	MSPRT0604AFFJ	Spring, Record Prevention Lever	AA
115	MSPRT0605AFFJ	Spring, Auto Stop Lever	AC
116	NBALS0004AGFJ	Steel Ball, 3mm Dia.	AA
117	NBLTH0066AFZZ	Belt, Flywheel Drive	AD
118	NBLTK0143AFZZ	Belt, Auto Stop Mechanism Drive	AC
120	NBRGC0064AFZZ	Bearing, Capstan	AE
121	NDAIR0136AFSA	Turntable, Take-up	AH
122	NDAIR0137AFSA	Turntable, Supply	AF

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
123	NDRM-0158AFZZ	Worm Gear, Auto Stop	AC
124	NFLYC0075AFZZ	Flywheel	AK
125	NIDR-0066AFZZ	Idler, Take-up	AH
126	NPLYR0050AFZZ	Pulley, Rubber, Take-up	AB
127	NPLYR0065AFZZ	Worm, Auto Stop Mechanism	AD
128	NROLW0011AFZZ	Roller, Fast Forward Wind & Rewind	AM
129	NROLX0003AFZZ	Gear, Rewind	AC
130	NROLY0026AFZZ	Pinch Roller, Deck 1	AC
131	NROLY0031AFZZ	Pinch Roller, Deck 2	AF
132	NSFTN0007AFFW	Shaft, Auto Stop Worm Gear	AE
133	NSFTT0133AFFP	Shaft, Function Key	AD
134	NSFTT0134AFFP	Shaft, Pause Release Lever	AC
135	NSFTT0135AFFP	Shaft, Cassette Compartment Interlocking Lever	AC
137	PSPAN0055AFZZ	Spacer, Cassette Compartment Lock Lever	AA
139	RHEDA0081AFZZ	Head, Deck 2 Erase	AL
140	RHEDF0063AFZZ	Head, Deck 1 Playback	AP
141	RHEDH0094AFZZ	Head, Deck 2 Record/Playback	AQ
142	RMOTV0076AFZZ	Motor	AV
CNS2	CCNCW238BAF01	Socket, 2 Pin, with Leads	
CNS701	CCNCW278EAF01	Socket, 5 Pin, with Leads	
CNS1,601	CCNCW280GAF01	Sockets, 7 Pin & 3 Pin, with Leads	
CNS801	CCNCW281HAF01	Socket, 8 Pin, with Leads	
CNS106	CCNCW281HAF02	Socket, 8 Pin, with Leads	
CNS301	CCNCW281HAF03	Socket, 8 Pin, with Leads	
CNS104	CCNCW284LAF02	Socket, 11 Pin, with Leads	
	CTPEK0079AF01	Cassette Tape (C-30)	AN
201	GCAB-1068AFSA	Front Cabinet Assembly	BF
⚠ 201-1	GCABA1572AFSA	Cabinet, Front	AZ
201-2	HDECA0425AFSA	Decoration Plate, Speaker (Woofer)	AB
201-3	HGRL-1070AFSA	Grill, Tape Fading & Mic Volume Control	AH
201-4	HGRL-1071AFSA	Grill, Left Speaker (Tweeter)	AH
201-5	HGRL-1072AFSA	Grill, Right Speaker(Tweeter)	AH
201-6	HPNC-0125AFSA	Metal, Punching	AU
201-7	HPNLD1198AFSA	Window, Dial	AG
201-8	PFLT-0428AF00	Felt, Tape Fading & Mic Volume Control	AA
201-9	PFLT-0432AF00	Felt, Built-in Microphone	AA
⚠ 202	GCABB1557AFSA	Cabinet, Rear	AW
⚠ 203	GCABC1518AFSA	Cabinet, Middle	AX
204	GFTAB1113AFSB	Lid, Battery Compartment	AD
205	GFTAC1137AFSA	Plate, Transparent, Cassette Compartment	AE
206	GFTAC1148AFSA	Cassette Compartment, Deck 1	AL
207	GFTAC1149AFSA	Cassette Compartment, Deck 2	AL
208	HBDGD1338CCZZ	Badge, SHARP	AE
209	HDALM0316AFSA	Plate, Dial	AL
210	HDECA0424AFSB	Decoration Plate, Cassette Compartment	AH
212	HDECB0018AGSA	Mirror, Cassette Compartment	AA
214	HINDM1453AFSA	Indication Metal, Review/ ◀◀ rew/ ■ stop/f.fwd ▶▶/ cue	AE
215	HINDP0279AFSA	Label, Specifications	AD
217	HSSND0270AFSA	Pointer	AF
219	JHNDG1064AFSB	Handle	AS
220	JKNBM0375AFSA	Button, APLD Down	AD
221	JKNBM0376AFSA	Button, APLD Up	AD
222	JKNBM0377AFSA	Knob, Dubbing Switch/Mode Selector Switch/Tape Selector Switches	AD
223	JKNBM0378AFSA	Knob, Function Selector	AD
224	JKNBM0379AFSA	Knob, Power Switch	AG
225	JKNBN0411AFSB	Knob, Wave-band Selector	AC
226	JKNBN0446AFSB	Knob, Tuning Control	AD
227	JKNBN0447AFSB	Knob, Fine Tuning Control	AC
228	JKNBN0472AFSA	Knob, Output Volume Control	AE
229	JKNBN0473AFSA	Knob, Bass Tone Control/ Treble Tone Control/ Channel Balance Control	AE
230	JKNBP0101AFSA	Knob, Tape Fading & Mic Volume Control	AD
231	KCOUB0104AFZZ	Tape Counter	AK
233	LANGA0069AFFW	Bracket, Wave-band Selector Gear	AB
234	LANGA0070AFFW	Bracket, Cassette Compartment Retaining	AA
235	LANGA0071AFFW	Bracket, Cassette Compartment Retaining	AB
237	LANGF0574AFFW	Bracket, Printed Wiring Board	AD
238	LANGK0247AFZZ	Bracket, Tape Counter	AC
239	LANGQ0675AFFW	Bracket, FM Aerial Terminal	AC
240	LANGQ0676AFFW	Bracket, FM Aerial Terminal	AC
242	LHLDF1240AFZZ	Frame, Printed Wiring Board	AL
243	LHLDP1067AFSA	Holder, Indicators	AE
244	LHLDW1068AFZZ	Nylon Band, 100mm	AA
245	LHLDW1075AFZZ	Nylon Band, 60mm	AA
247	LHLDW9002CEZZ	Wire Holder, 100mm	AA
248	LHLDW9003CEZZ	Wire Holder, 45mm	AA
249	LHLDZ1086AFZZ	Holder, Power Switch Knob	AC
250	LHLDZ8070AFZZ	Holder, Built-in Microphone	AB
251	LX-BZ0289AFFD	Screw, Mechanism Retaining	AA
252	LX-CZ0002AFZZ	Screw, 4mm Dia. x 70mm, Cabinet Retaining	AB
253	LX-CZ0004AFZZ	Screw, 4mm Dia. x 60mm, Cabinet Retaining	AB
255	MJNT-9053AFZZ	Joint, Function Selector Switch	AF
256	MLEVF0916AFZZ	Lever, Function Selector	AF
258	MLEVP0127AFZZ	Lever, Power Switch	AC
259	MLEVP0128AFZZ	Lever, Record Key Interlocking	AC
260	MLEVP0132AFZZ	Lever, Editing Key Interlocking	AC
262	MLEVP0250AFZZ	Lever, Record/Playback Switch	AC
263	MLIFP0003AFZZ	Damper, Cassette Compartment	AD
265	MSPRC0175AFFN	Spring, Battery Terminal	AD
266	MSPRC0176AFFN	Spring, Battery Terminal	AB
268	MSPRD0206AFFW	Spring, Deck 1 Cassette Compartment	AA
269	MSPRD0207AFFW	Spring, Deck 2 Cassette Compartment	AA
272	MSPRK0055AFFJ	Spring, Editing Key Interlocking	AB
274	MSPRP0207AFFW	Plate Spring, Handle Retaining	AB
275	MSPRP0242AFFJ	Plate Spring, Cassette Compartment	AA
276	MSPRP0250AFFW	Plate Spring, APLD Up & Down Button Return	AB

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
278	MSPRT0003AGFW	Spring, Dial Stringing	AA
280	NBLTK0182AFZZ	Belt, Tape Counter Drive	AC
281	NDRM-0159AFZZ	Drum, Dial Stringing	AC
282	NGERH0052AFZZ	Gear, Wave-band Selector	AC
283	NGERH0064AFZZ	Gear, Wave-band Selector	AC
284	NPLYB0050AFZZ	Pulley, Dial Stringing	AA
285	NPLYB0051AFZZ	Pulley, Dial Stringing	AA
⚠ 287	PCOVP1168AFZZ	Cover, Power Supply Printed Wiring Board	AG
288	PCOVP8156AFSA	Cover, Knob	AA
289	PCOVP9151AFZZ	Knob Sheet, Tape Fading & Mic Volume Control	AC
290	PCUSU0128AFZZ	Cushion, Coils (L1,L2,L3,L4)	AA
291	PCUSU0213AFZZ	Cushion, Power Switch Lever	AA
292	PCUSU0231AF00	Cushion, Battery Compartment Lid	AB
293	PFLT-0127AF00	Felt, Battery Compartment	AA
294	PFLT-0339AF00	Felt, Rear Cabinet & Cassette Compartment Plate Spring	AA
295	PFLT-0444AF00	Felt, Function Selector	AA
298	PGUMS0114AF00	Rubber, Tape Fading & Mic Volume Control	AA
299	PGUMS0143AF00	Cushion Rubber, 2mm x 12mm x 16mm	AA
300	PGUMS0159AF00	Cushion Rubber, 5mm x 7.5mm x 11.2mm	AA
302	PRDAR0198AFFW	Heat Sink	AF
303	PSLDC3110AFZZ	Shield Plate, Indicators Printed Wiring Board	AE
304	PSLDM3154AFFW	Shield Plate, Radio Printed Wiring Board	AC
305	PSLDM7118AFZZ	Shield Plate, Rear Cabinet	AD
306	PSPAN0060AFZZ	Spacer, Mixing Mic Socket P.W. Board	AA
307	PTPEC0005AG00	Ribbon, Battery Compartment	
⚠	QACCD0051AF00	Mains Lead	AH
309	QANTR0118AFZZ	Telescopic Aerial	AP
CNP102	QCNCM0402SGZZ	Plug, 4 Pin	AB
CNP702	QCNCM0411SGZZ	Plug, 4 Pin	AD
CNP701	QCNCM0503SGZZ	Plug, 5 Pin	AC
CNP1	QCNCM0705SGZZ	Plug, 7 Pin	AC
CNP106,301	QCNCM0806SGZZ	Plug, 8 Pin	AC
CNP2,103	QCNCM095BAFZZ	Plug, 2 Pin	AB
CNP104	QCNCM1101AGZZ	Plug, 11 Pin	AC
CNP101,105	QCNCM136CAFZZ	Plug, 3 Pin	AB
CNP801	QCNCM238HAFZZ	Plug, 8 Pin	AD
CNP601,802	QCNCM284CAFZZ	Plug, 3 Pin	AF
310	QCNTZ0050AFZZ	Tip, Wiring	AA
JL2	QCNW-0517AFZZ	Jumper, 7 Leads, 60mm	AB
JL3	QCNW-0518AFZZ	Jumper, 9 Leads, 60mm	AC
JL1	QCNW-0666AFZZ	Jumper, 2 Leads, 60mm	AA
CNS105	QCNW-0810AFZZ	Socket, 3 Pin, with Leads	AC
CNS802	QCNW-0811AFZZ	Socket, 3 Pin, with Leads	AD
CNS103	QCNW-0819AFZZ	Socket, 2 Pin, with Leads	AE
CNS101	QCNW-0870AFZZ	Socket, 3 Pin, with Leads	AF
CNS702	QCNW-0872AFZZ	Socket, 4 Pin, with Leads	AF
CNS102	QCNW-0873AFZZ	Socket, 4 Pin, with Leads	AF
311	QCNW-0985AFZZ	Wiring Lead, FM Aerial Terminal	AF
⚠ F701	QFS-C122CAGNI	Fuse, T1.25A/250V	AE
312	QFSHD2051AFZZ	Holder, Fuse	AA
J702(A,B)	QJAKB0053AFZZ	Socket, External Speaker	AF
J301	QJAKE0069AFZZ	Socket, Mixing Microphone	AE

REF. NO.	PART NO.	DESCRIPTION	CODE
J701	QJAKJ0069AFZZ	Socket, Headphones	AG
J101	QJAKJ0074AFZZ	Socket, Deck 1 Monitoring Output	AG
J501 (A~J)	QJAKZ0092AFZZ	Sockets Assembly J501 (A,B): Line Output J501 (C,D): Line Input J501 (E,F): Record Player Input J501G: Earthing Terminal J501H: Remote Start/Stop Control J501 (I,J): External Microphone	AP
313	QLUGP0111CEFW	Lug Terminal, 13mm	AA
⚠	QPLGA0251AFZZ	Adaptor, AC Plug	AE
⚠ SW702	QSOCE0562AFZZ	Voltage Selector, Mains Supply	AH
⚠ J703(A,B), SW703	QSOCZ2185AFZZ	Terminals Assembly J703A: DC 15V Input, J703B: AC Input, SW703: AC/DC Selector Switch	AH
SW603 (A,B,D)	QSW-B0002AFZZ	Switch, Mode Selector (FM Mode/Mixing/FM Muting)	AF
SW601B	QSW-B0114AFZZ	Switch, Deck 1 Tape Selector	AE
SW604A	QSW-B0114AFZZ	Switch, Dubbing	AE
SW602(A,B)	QSW-B0131AFZZ	Switch, Deck 2 Tape Selector	AF
SW801	QSW-F0131AFZZ	Switch, Deck 2 Fast Forward Wind/Skip (cue) Key Interlocking	AD
SW802	QSW-F0131AFZZ	Switch, Deck 2 Rewind/Review Key Interlocking	AD
SW806	QSW-F0131AFZZ	Switch, Deck 1 APLD Forward Key Interlocking	AD
SW807	QSW-F0131AFZZ	Switch, Deck 1 APLD Reverse Key Interlocking	AD
SW808	QSW-F0131AFZZ	Switch, Deck 1 Fast Forward Wind/Skip (cue) Key Interlocking	AD
SW809	QSW-F0131AFZZ	Switch, Deck 1 Rewind/Review Key Interlocking	AD
SW803,805	QSW-F0132AFZZ	Switch, Deck 2 Function Key Lock Lever Interlocking	AD
SW810,812	QSW-F0132AFZZ	Switch, Deck 1 Function Key Lock Lever Interlocking	AD
SW701	QSW-F0133AFZZ	Switch, Power	AD
SW605	QSW-K0050AFZZ	Switch, APLD Down	AC
SW606	QSW-K0050AFZZ	Switch, APLD Up	AC
SW103(A~C)	QSW-P0216AFZZ	Switch, Editing	AE
SW1(A~J)	QSW-R0172AFZZ	Switch, Wave-band Selector	AN
SW102 (A,C,D)	QSW-S0254AFZZ	Switch, Function Selector	AF
SW104	QSW-S0276AFZZ	Switch, Beat Interference Cancelling	AD
SW101(A~I)	QSW-S0304AFZZ	Switch, Record/Playback	AG
315	QTANB0156AFFN	Terminal, Battery	AB
316	QTANN0253AFZZ	Terminal, FM Aerial	AE
317	RMICC0071AFZZ	Microphone, Built-in	AF
SOL1	RPLU-0092AFZZ	Solenoid, with Plunger	AL
	SPAKA0683AFZZ	Cushion, Packing, Left Hand Side	AF
	SPAKA0684AFZZ	Cushion, Packing, Right Hand Side	AG
	SPAKC1704AFZZ	Individual Carton	
	SPAKX0361AFZZ	Cushion, Cassette Compartment Lid	AD

PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	CODE
	SSAKH0024AGZZ	Bag, Operation Manual	AA
	SSAKH0116AFZZ	Bag, Unit	AC
	TCADZ0071AFZZ	Card, Initial	AF
	TINSE0713AFZZ	Operation Manual	
318	TLABP0164AFZZ	Label, Battery Caution	AA
	TLABS0096AFZZ	Label, L.A.	AB
⚠ 319	TLABS0101AFSA	Label, Caution	AB
	TLABZ0131AFZZ	Label, Cassette Compartment Lid	AA
	TMAPC0755AFZZ	Schematic Diagram	
	TTAG-0082AFZZ	Tag, Cassette Compartment Lid	
SP3,4	VSP00HNTX16ZC	Speaker, Tweeter	AH
SP1,2	VSP0016PB504A	Speaker, Woofer, 16cm	AV

DIFFERENCE BETWEEN GF-515 AND GF-515C

REF. NO.	GF-515			GF-515C		
	PART NO.	DESCRIPTION	CODE	PART NO.	DESCRIPTION	CODE
D702	10E1	Rectifer (VHD10E1////-1)	AC	10E1	Rectifier (RH-1006AFZZ)	AC
T701	⚠ RTRNP0657AFZZ	Transformer, Power	AT	⚠ RTRNP0691AFZZ	Transformer, Power	AW
C707,708	VCKZPU1HF104Z	.1MFD, 50V, +80–20%, Ceramic	AB	VCTYPU1EX104M	.1MFD, 25V, ±20%, Semiconductor	AB
C725	Not Used			VCTYPU1EX104M	.1MFD, 25V, ±20%, Semiconductor	AB
R21,292	VRD-ST2EE221J	220 ohm, 1/4W, ±5%, Carbon	AA	⚠ VRD-ST2EE221J	220 ohm, 1/4W, ±5%, Carbon	AA
R459	VRD-ST2EE121J	120 ohm, 1/4W, ±5%, Carbon	AA	⚠ VRD-ST2EE121J	120 ohm, 1/4W, ±5%, Carbon	AA
R460	VRD-ST2EE560J	56 ohm, 1/4W, ±5%, Carbon	AA	⚠ VRS-PT3AB560J	56 ohm, 1W, ±5%, Metal Oxide Film	AA
R511	VRD-ST2EE120J	12 ohm, 1/4W, ±5%, Carbon	AA	⚠ VRG-ST2HA120J	12 ohm, 1/2W, ±5%, Fusible	
R514	VRD-ST2EE100J	10 ohm, 1/4W, ±5%, Carbon	AA	⚠ VRG-ST2HA100J	10 ohm, 1/2W, ±5%, Fusible	AB
R608	VRD-ST2EE220J	22 ohm, 1/4W, ±5%, Carbon	AA	Not Used		
R706,707	VRD-ST2EE2R2J	2.2 ohm, 1/4W, ±5%, Carbon	AA	Not Used		
R712	Not Used			⚠ VRG-ST2HA220J	22 ohm, 1/2W, ±5%, Fusible	AB
CNS701	CCNCW278EAF01	Socket, 5 Pin, with Leads		QCNW-0821AFZZ	Socket, 6 Pin, with Leads	
203	GCABC1518AFSA	Cabinet, Middle	AX	GCABC1569AFSA	Cabinet, Middle	AX
215	HINDP0279AFSA	Label, Specifications	AD	⚠ HINDP0289AFSA	Label, Specifications	AD
302	PRDAR0198AFFW	Heat Sink	AF	PRDAR0218AFFW	Heat Sink	AH
CNP701	QCNCM0503SGZZ	Plug, 5 Pin	AC	QCNCM0604SGZZ	Plug, 6 Pin	AC
F701	⚠ QFS-C122CAGNI	Fuse, T1.25A/250V	AE	⚠ QFS-B202AAFNI	Fuse, T2.0A/125V	AE
	⚠ QPLGA0251AFZZ	Adaptor, AC Plug	AE	Not Used		
SW702	⚠ QSOCE0562AFZZ	Voltage Selector, Mains Supply	AH	Not Used		
	SPAKC1704AFZZ	Individual Carton		SPAKC1705AFZZ	Individual Carton	AP
	TINSE0713AFZZ	Operation Manual		TINSK0051AFZZ	Operation Manual	
	TLABS0096AFZZ	Label, L.A.	AB	Not Used		
319	⚠ TLABS0101AFSA	Label, Caution	AB	Not Used		
320	Not Used			TCAUA0216AFZZ	Label, Caution	AC
	Not Used			TLABS0006AGZZ	Label, C.S.A.	AA
	TLABZ0131AFZZ	Label, Cassette Compartment Lid	AA	Not Used		
	TMAPC0755AFZZ	Schematic Diagram		TMAPC0756AFZZ	Schematic Diagram	
	TTAG-0082AFZZ	Tag, Cassette Compartment Lid		Not Used		
	Not Used			TTAGH0172AFZZ	Tag	
	Not Used			TLABM0100AFZZ	Label, Indication: 22W/DOUBLE CASSETTE/METAL/APLD	AD

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